

WEIGH UP

Tall, Slim and Wobbly

Rotary star wheel weighing systems for aerosols

Relocating Production, Reducing Costs

Keeping an eye on commissioning costs

Safe Food for All

How to minimise reputational risks





Making Visions Come True Page 10

WIPOTEC CUSTOMER MAGAZINE

4 Editorial

Vertical integration pays off

6 Newsflashes

News from WIPOTEC

8 Interview with CTO

Let's talk with the Chief Technical Officer

10 Making Visions Come True

Maintaining and developing a leading position

13 Clever is as Clever Does

Cross-generational construction of a raised bed

14 Tall, Slim and Wobbly

Rotary star wheel weighing systems for aerosols

17 Foreign Body Detection in Canned Fish

100% checking for 100 million



Relocating Production, Reducing Costs **Page 20**



Track & Trace in the Era of Industry 4.0 **Page 32**

20 Relocating Production, Reducing Costs

Keeping an eye on commissioning costs

25 Weighing Technology for Pharmaceutical Cosmetics

In-process weighing versus checkweighers

28 Opportunities in China

Strengthening contacts, extending relationships

30 Globalised Markets WIPOTEC in the USA

Individual product-oriented solutions
for customers in North America

32 Track & Trace in the Era of Industry 4.0

The pharmaceutical model:
Optimising supply chains

34 Quality Assurance of Folding Boxes

Checkweighers in high-speed packaging lines

37 Mini X-ray Scanner with Maxi Performance

All-round machine with many talents

38 Predicting the Future

Proactive maintenance prevents
machine downtimes

40 Safe Food for All

How to minimise reputational risks

42 Legal Liability in Germany

Product liability versus producer liability

44 Regulations for Food Manufacturers in Europe

HACCP concepts as a quality tool

46 Make Way for the D-Box

Sorting centres: Vibration problems
under control

49 Legal Information

/ Vertical Integration Pays off

By Theo Düppre
Founder and CEO WIPOTEC Group



Our employees are experts who do not wait for innovations from outside.

Theo Düppre

Founder and CEO WIPOTEC Group

For years we have been experiencing a change in production behaviour that has had dire consequences – and not only in Germany; now that more and more preliminary performance is being outsourced and business services are relocated, value creation is not keeping pace with the expansion of production, resulting in a long-term decline in vertical integration. Today, small enterprises with one-off and small batch production make up the majority of companies in the production-intensive companies class; companies the size of WIPOTEC with a vertical integration of 85% are very scarce. What are the reasons for our exceptional position?

More productivity due to highly-qualified employees

The high degree of vertical integration at WIPOTEC is no accident. It was a conscious decision even though this level of vertical integration generates costs and pools capacities, for example in research and development or stock management. As we rely on knowledge-intensive production processes, we have a greater need for employees with a higher level of qualification than companies with other production structures. At the same time, our high degree of vertical integration increases productivity because simple process sequences are less productive; this applies not only in Germany but worldwide. We see the qualification of our employees as a special benefit for WIPOTEC. They are our company's expertise and also its capital.

Global sourcing?

Nowadays, it is trendy to use global supply chains; above all, the market expects that preliminary purchasing internationally will reduce costs. However, we also know that there is often a trade-off between these supposed advantages and the need for greater coordination efforts to ensure a constant ability to respond and deliver. So, our focus is not on global sourcing but on our own vertical integration and on regional partners. When we do buy outside parts, we do it as regionally as possible with suppliers that have flexible delivery times.

Focus on core competencies

It is important to assess what should and should not be part of our own technology and core competence. In any case, we want to manufacture quality-relevant components ourselves as well as those that require a high level of manufacturing competence. This is where the know-how bearers come in. A prime example for this are the monoblocks as key components of our Weigh Cells. All monoblocks are series-produced, unattended and manufactured overnight, in the company's own CNC machining centre. The range extends from filigree monoblocks, the size of a matchbox, for pharmaceutical applications to monobridges weighing several kilos that are installed in heavy load checkweighers.

Local maker!

WIPOTEC is a medium-sized company, a hidden champion and as such is involved in a highly specialised, knowledge-based high-tech sector. We are conservative when it comes to outsourcing. I call it the "everything from one single source" principle. In terms of type, I would put us in the "local maker" group – with below-average prepurchasing, and then only from locally motivated suppliers, coupled with an above-average level of vertical integration.

No waiting for innovations

Our employees are absolute specialists in their field. This means that we have no need to wait for innovations from outside. With their help, we rely on a high degree of vertical integration and closed value chains to generate long-term specialisation advantages. We can then incorporate these advantages into our products and place them on the market faster than our competitors.

Vertical integration makes sense

Vertical integration is economically worthwhile because it is the only way that our products can achieve a distinct individuality and variability. This enables us to make direct use of experience which is fed back, say from production to development. The extraordinarily high degree of individualisation seen among our products makes a high degree of vertical integration the only sensible approach. It means constructing highly complex machines in many versions, with many modules that can be exchanged back and forth between standard and tailor-made machines. Our inspection and weighing systems are individually intricate to design and difficult to build. They do exactly what the market or the customer wants. And on top of this, they offer precisely the added values that have allowed us to become the technology leader.

Quality and reliability

The demonstrably long operating lives of our systems are no coincidence but rather the result of quality and reliability. And also the result of the intelligent engineering found in our products. This is found in every part of our machines due to the high degree of vertical integration. As we develop and produce motors and drives, belts, control systems, cameras and even circuit boards ourselves, we can guarantee product life cycles and system compatibility for long periods. Our high degree of vertical integration means that we are not dependent on suppliers. This is extremely important in the industries in which our machines often run for decades. And this applies not only to our machine components but also to high-tech electronics by WIPOTEC. One example: For the TDI camera, the camera detector of our X-ray machines which is a wear part for many other manufacturers, we estimate a lifetime of more than 420,000 hours (10 years in single-shift operation).

What is important to you?

“Innovation. Passion. First.” Spurred on by our corporate philosophy, we develop and produce unique machine solutions as well as high-performance weighing technology and inspection solutions at our headquarters in Kaiserslautern, Germany. It goes without saying that quality, reliability and degree of fulfilment come at a price. Our customers know this. For them, it is important that an investment in WIPOTEC technology can fulfil its intended task. It is this very promise that we make and keep.

I wish you every success with your ventures.



Theo Düppre

Dear Customers,

It is mainly smaller companies that rely on a high degree of vertical integration. With ambitious production concepts, these companies are very successful in the production of one-off or small batches. By contrast, WIPOTEC is a very large, fast-growing medium-sized company. However, we also manufacture 85% of our technologically specialised and highly innovative products in-house.

Why do customers find our solutions so attractive? The answer is our flexibility. No matter how complex and varied our machines, their performance is specified in every detail. Every customer has the opportunity (and uses it) to precisely define the performance scope of their project with a catalogue of requirements. Based on their specification, they choose the system that is best suited to their needs. This is where our solutions score in many categories. Often in all of them. It is why we win many projects both nationally and internationally.

In addition to the performance data, it is also properties such as the durability and reliability of our machines which impress buyers. These properties are based on the high quality requirements we place on all components of our products. Properties which we can guarantee for all assemblies of our machines because of our high proportion of in-house production.

In this edition of Weigh Up, we show you how we are responding to current challenges – with lots of new products and application examples from our customers who are successfully using our systems.

I hope you enjoy reading it.



Theo Düppre
Founder and CEO WIPOTEC Group

Newsflashes



/Meet our Experts at **interpack 2021**

Experience exceptional production quality, flexibility and consulting competence and learn about your customer benefits through our innovations in the field of checkweighers, X-ray inspection, track & trace and Weigh Cells. We look forward to welcoming you at the interpack from 25.02. – 03.03.2021. Meet our experts at booth A56 in Hall 14 who can show you the right solution for your industry or specific application. Our second booth C41 is located in hall 15, where we will showcase industry-specific solutions for the pharmaceutical industry.

Make an appointment at: wipotec.com/interpack ▲

/Successful Trainees

We call it a win-win situation when it's a success story for both sides. Five trainees started their training at WIPOTEC and all five completed it successfully in January. But that's not the end of the story. We are not only very proud of our trainees' phenomenal success, we are also pleased about their vote of confidence in us, since all of them want to continue their careers successfully at WIPOTEC and will, of course, be taken on by WIPOTEC. ▲



/No Good **for the (Out)line**

Not suitable for inline and no good at all for the (out)line: a "Weigh Cell" brought in by an employee following a successful trial period. Despite this, it was a great hit with everyone at work! Wouldn't it be a nice way to start every workday... ▲



/ Hygienic Design

Hygienic design means designing systems, like checkweighers or X-ray inspection equipment, which are used in hygiene-relevant areas such as those in the food industry, to make cleaning effortless. The objective is to prevent design flaws that could promote hygiene-related hazards. The ability to clean materials, surfaces and structural elements without obstructions is of paramount importance. Contaminants of any kind must not be allowed to settle or remain permanently; on the contrary, they must be easy to remove and the overall design must facilitate cleaning of the product-carrying areas without leaving residues.

Cleaning products and disinfectants as well as any liquids originating from food must be able to drain away freely and parts which are removable for cleaning purposes should be easy to dismantle. Systems made of stainless steel have a clear advantage; specification in accordance with IP65 is strongly

recommended. Resistance to cleaning products and corrosion is required if machine wash down is intended. Wash down is the cleaning process that uses high-pressure steam cleaners, such as those commonly found in meat processing plants. In many cases, wet cleaning necessitates a higher protection class, often IP69K. WIPOTEC-OCS provides an example of good hygienic design in the HC-M-WD, a reliable and robust checkweigher in innovative wash-down hygienic design which includes a robust, hygiene-compliant stainless steel housing. The model fulfils all legal requirements of the food processing industry.

The X-ray scanners of the SC-WD series are also intended for use in hygiene-related areas. They fulfil protection class IP69K; a C-shaped product space, bevelled surfaces and stainless steel housing meet even the most stringent hygiene requirements. ▲

/ Multi-inspection on the Rise

Optical product inspection systems do a lot: They enable cover film verification and the checking of 1D and 2D bar-codes. Information printed on products, such as batch dates, best before dates and nutritional values, can be checked for correctness and flawless printing. Labels and stickers can be checked for correct positioning and readability.

Multi-inspection systems can do a whole lot more. As a combination of checkweigher and vision inspection system, the HC-A-V from WIPOTEC-OCS is not only able to visually check products from both above and below but can also subject them to a weight check at the same time. The SC-W-V offers even more inspection functionality. This model also includes integrated X-ray inspection. Both machines have ejection systems which sort rejected products into separate bins according to inspection criterion. ▲



Interview with CTO

Let's talk with the Chief Technical Officer Jens Kühn

Innovative companies with considerable agility need the best equipment if they are to develop and produce efficiently. WIPOTEC therefore invests constantly in technical infrastructure throughout the Group and at all locations. It is currently introducing systems aimed at more efficient virtual interoperability between departments and divisions. These digital workplaces provide localised information, tools and services and make it possible to work collaboratively with colleagues and project teams across all sites. Effective work processes, however, cannot even be implemented without employees with the appropriate qualifications. What follows is an interview with Jens Kühn, a member of the WIPOTEC leadership, about recruitment, technical expertise and the product range.



One industry learns from another. This is a case where WIPOTEC is both a pioneer and a multiplier.

Jens Kühn
CTO WIPOTEC

Mr Kühn, how are you meeting the challenges of staff recruitment, especially in the IT/technology field?

Finding well-trained and qualified employees really is a challenge. We conduct our search through many channels. Digitally, across various platforms and portals on the Internet, and also by the traditional route, "analogue", so to speak. Among other things, we take advantage of our proximity to the university and college in Kaiserslautern and advertise actively for WIPOTEC on campus.

What can you offer students in particular?

We offer students of dual study programmes an attractive environment with interesting tasks during their studies or in the course of bachelor's and master's theses. We accompany the young academics through their studies and forge close relationships with them at a very early stage. For some students, this is also the launchpad for their professional career: Young academics at WIPOTEC.

And in the commercial field?

Here, our training department supervises and encourages our own trainees. After successfully completing their training, these young people have the world of WIPOTEC at their feet. The excellent transfer-to-employment rates show this clearly. After initial experience in production, quite a few trainees later choose to go down the path of advanced in-service training and thus qualify to work in our technical departments or to participate in a dual study programme.

What are the advantages of WIPOTEC's wide range of products for your customers?

They benefit from our extensive knowledge. Our wide range of products with many industry-specific solutions enables us to adapt technologies, inspection and Track & Trace functions, or even methods for product handling, quickly and efficiently for other sectors and their applications. As a result, our knowledge means that one industry ultimately learns from another. This is a case where WIPOTEC is both a pioneer and a multiplier.

WIPOTEC is a solution provider that says, "There's no such thing as impossible." What technical problem has kept you occupied for longest so far?

Sometimes the route to a solution isn't easy and may even take years. I'm thinking back here to an enquiry from a big international corporation in the early 2000s. The company wanted to weigh stacked crisps, that is stacked potato crisps, in cardboard tubes inline, in a calibrated and verifiable manner, at a rate of up to 320 tubes per minute.

And what was the problem?

The tubes were transported upside down and were open. In addition, the tubes had to be suitably separated and, if underfilled or overfilled, reliably discharged without falling over. An extremely demanding application and a very wobbly one at that!

Were you able to solve the problem?

Not immediately. At the time, we couldn't implement the requirements with the level of process reliability we were looking for. It wasn't until the end of the decade that we had another go at the task. As part of an extensive development project, we created a high-performance checkweigher which could weigh up to 400 tubes or cans per minute in a calibrated and verifiable manner. This was possible due to a perfect combination of mechanics, measuring and control technology. It shows yet again that excellent weighing accuracy is always critically dependent on perfect product handling. Several of these systems are now in operation at our customer's premises and are performing their tasks reliably, precisely and capably.

What technical solution are you working on at present?

As with the stacked crisps, customers still regularly approach us with new ideas and requirements. Some questions are in an area that we would currently dismiss as wishful thinking or "there's no way that could work". Development, however, continues to forge ahead. Our research and development department is consistently working on new methods and procedures to push the technical limits in inspection technology further forward, thereby extending our technology leadership.

Can you give us an example?

There are exciting challenges afoot, particularly in X-ray inspection technology. In the area of glass-in-glass detection, this is about improving detection sensitivities and ensuring 100% inspection of the jars without dead zones, in the required output range of modern production lines. Multispectral analysis of meat and sausage products, for example, also opens up various new opportunities for product analysis. This is important for quality assurance but also increasingly for active process control in meat and sausage production.

That sounds like a lot of expertise. How do you protect your technical inventions?

With patents. Patents have high priority at WIPOTEC. All patent matters are handled by our patent specialists in the Standards department. On the one hand, we have to ensure that our ideas and new developments do not infringe the industrial property rights of others. On the other hand, we also keep a very close eye on new patent applications in the specialist fields relevant to us.

WIPOTEC is considered to be an innovation driver in the industry...

That's certainly true. WIPOTEC receives worldwide attention and recognition in this respect. With regard to our own patent applications, we see them primarily as protecting our intellectual property so as to prevent others from using our patented technologies. From this point of view, we use patents predominantly to safeguard our own core business and not as a marketing tool. ▲



Three Questions to Jens Kühn

Which is your favourite WIPOTEC machine?

I don't have a favourite WIPOTEC machine. We offer outstanding, excellent machines in every product line that are unrivalled in their respective areas of application, even in the competitive environment. Personally, I find the machines that combine several different functions in a very small space especially exciting.

For example?

I'm thinking in particular of our all-in-one inspection machine. This machine combines foreign body inspection based on our X-ray technology, weight check with EMFR Weigh Cell and vision inspection, based on our camera technology. What's more, the machine also performs targeted, individual sorting of defective products – into separate sorting channels for foreign bodies, weight and vision inspection if required. And all of this on a very small footprint, compact and space-saving.

If you don't have a favourite machine, do you have a favourite industry?

The same applies: I don't have a favourite industry either. I find it interesting that our sensors, components and machines are used in so many different industries. Every industry has its specific requirements and as a result it's always exciting, even for me, to see what new challenges we might rise up to for our customers. We have our finger on the pulse and constantly receive new stimuli from many different directions.

Jens Kühn is 50 years old and a member of the WIPOTEC management board.

He is involved with the voluntary fire service and plays the drums in a musicians' club.

/ Making Visions Come True

In the ideal case, result-oriented management guidelines and visionary development decisions aim in the same direction. Jens Kühn, Chief Technical Officer and member of the WIPOTEC management board, is convinced that this is the only way to maintain leading positions in the market and to expand further.



All-round checking of labels and codes

Combining the spirit of WIPOTEC's start-up period with the requirements for cutting edge series production of inspection machines and intelligent Weigh Cells in an international company with more than 1,000 employees is certainly a challenge. A challenge overcome at WIPOTEC on a daily basis. Thanks to a varied product range and the large number of associated system modules which give rise to countless possible combinations, there are intelligent solutions for everything. This box of tricks has grown over many years and expands in line with every innovation and new development. The range extends from the efficient system assembly of a wide variety of standard machines in a central assembly line production plant to the

ability to efficiently handle highly complex development and special projects in a structured manner.

More and more processes are being digitalised for this purpose. Processes are being even more closely meshed together, sequences and states of the entire value chain are being further optimised and made more transparent overall.

New emphases in inspection technology

New legal requirements in particular but also quality-related guidelines of the large retail chains and corporate groups have a significant effect on defining new emphases in inspection technology. Jens Kühn says, "When it comes to anti-counterfeiting and tamper evidence, the Track & Trace activities established

Details for the development of new ideas are discussed in the design department



in the pharmaceutical industry will also be transferred to other industries and sectors in the next few years.” Initial projects in the lubricant, beverage or baby food industry are proof of this. In the future, Track & Trace will make a significant contribution to tracing the cold chain of fresh products. WIPOTEC has the necessary basic technology in its products and will actively support customers with specialist knowledge and expertise.

More quality inspections in the line

In the end-of-line business of the filling and packaging industry, there will be a shift towards more complex inspection machines that take over several inspection tasks simultaneously within one machine. Customers are asking for more quality inspections inline, i.e. in the line itself. WIPOTEC, with its very compact and highly integrated inspection systems, offers solutions for these requirements.

New tasks are also being added. The reasons for this are that more and more packet and product attributes are to be inspected 100% during ongoing production – in this case by vision inspection systems. These are inspections that the quality assurance section used to carry out manually in the form of random checks. Examples of this are label checks (labels are verified or inspected for alignment and position), seal-tightness inspections of thermoform packages or fat/meat analyses in the meat products industry.

Developments in weighing technology

In the OEM sector in particular, the market is demanding increasingly compact Weigh Cells in order to save even more space when integrating them into filling and packaging machines. The developers and designers at WIPOTEC are constantly working on miniaturising the designs, while maintaining or increasing the available load capacities and measuring resolutions of the sensors. In the basic research at WIPOTEC, we are currently developing a new generation of electrodynamic force-compensated Weigh Cells which may be used in potentially explosive environments. The approval process for obtaining the EU type examination certificate is very time-consuming and expensive. Among other things, such explosion-proof Weigh Cells are used when filling aerosols. Further development of evaluation algorithms for the sensors is another research topic. These algorithms analyse the measuring signals of Weigh Cells. The research goal is to obtain even more precise results together with shorter measuring times.

Make or buy is not a question

For Jens Kühn, the question of make or buy never even comes to mind. A high degree of vertical integration makes us strong and robust against external influences. It is being further developed particularly with regard to core competencies in the area of sensor production and inspection technology. The associated >>

production expertise in the relevant departments has always been behind “make or buy”. WIPOTEC combines both the engineering and production competence for many different technical disciplines under one roof. For example, WIPOTEC develops its own electronic control systems, motors/drives and cameras. The mechanical design department also deals with every detail of the Weigh Cells/sensors and inspection machines. Many special components that are needed for the machines are simply not available on the market. It is also difficult to find reliable suppliers and partners who meet the high quality requirements long term, whether in prototyping or mass production. So it is important for WIPOTEC to continuously develop and expand both its engineering competence and its production methods.

Knowing what the customer wants

Customer requirements and customer awareness alter with changes to the production conditions. As individual production batches become smaller and smaller, errors during production set-up become increasingly significant and put pressure on line efficiency. The large number of inspection devices and their individual operation often place a strain on the staff operating filling and packaging lines.

These days, customers want inspection solutions from a single source with central article/batch changing, such as offered by WIPOTEC. This reduces the typical errors when starting up production. Top of the wish list is common, intuitive central operation of all inspection devices. This makes it easier for the customer’s operating and maintenance staff to master the complex settings. The projects themselves are demanding, especially in the area of X-ray inspection systems and vision inspection: these machines are frequently new territory for customers. WIPOTEC project engineers often have to consult intensively to work out the requirements for the inspection

In-house production of belt motors



WIPOTEC is a series producer of customer-specific planned inspection machines with a batch size of 1.

Jens Kühn
CTO WIPOTEC

systems together with the customer. This results in a catalogue of requirements which in turn is the basis for the mechanical engineering solution of an inspection machine.

Process automation with Industry 4.0

In addition to the new tasks of inspection technology in the line itself, there are also increasing customer requirements in connection with Industry 4.0 and process automation. WIPOTEC inspection machines have had extensive self-diagnosis functions for many years. Now the requirements are ramping up for issues such as condition monitoring and predictive maintenance. It must be possible to call up all information via intelligent data interfaces. Inspection machines are incorporated in higher-level DP systems to an increasing degree and are thus operated in a fully automated process environment. WIPOTEC is working on future-oriented procedures for predictive maintenance; it will also use artificial intelligence for this. Comscale already provides a system solution for networking all WIPOTEC inspection systems at the customer’s premises.

WIPOTEC looks for technical challenges and frequently strikes out in new directions off the beaten path when implementing development tasks. At first glance, this is more time-consuming and more expensive in terms of resources. However, this is the only way to arrive at really new, pioneering solutions that impress customers. And make dreams come true. ▲

/ Clever is as Clever Does

Cross-generational construction of a raised bed
at the St. Hedwig care home



The "raised bed bench", built and
planted by the WIPOTEC team



They can do more than just high-tech – at the end of May last year, a team of 13 WIPOTEC employees built and planted a raised bed for the St. Hedwig care home. The charitable project, mediated by Kaiserslautern Volunteer Agency, was carried out under the patronage of Theo Düppre, co-founder and CEO of WIPOTEC.

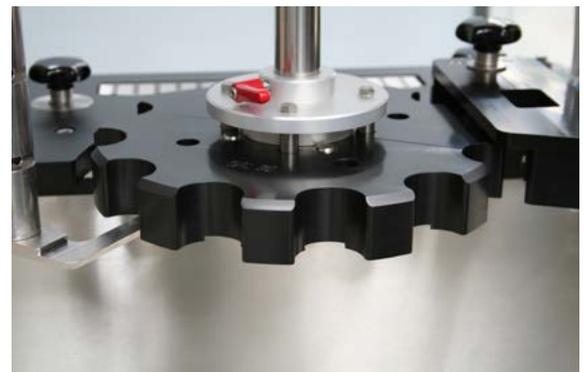
WIPOTEC provided and prepared all the materials. Then on the appointed day, a raised bed was created with hands-on help from the care home residents. On the day of action, some 14 company teams put charitable projects into practice under the heading "KLUG – KaisersLauterer Unternehmen mit Gemeinsinn", loosely translated as "CLEVER – Kaiserslautern companies with community spirit". At the end of the day of action, Theo Düppre warmly thanked the teams and all the companies involved. ▲

Tall, Slim and Wobbly

There's no getting away from them: rotary star wheels with format-specific pockets allow up to 400 weighing operations per minute. This way, checkweighers can also be used to weigh products with a high centre of gravity at high speeds.



WIPOTEC OCS HC-A-IS Checkweigher
operating at Zellaerosol's



A star wheel with format-specific pockets, picks up the products as they arrive on the conveyor belt and rotates the product over the Weigh Cell.

Tall, cylindrical containers, with a relatively high centre of gravity and a comparatively small footprint are found everywhere in the aerosol industry. Products of this type, which are transported very close together on conveyor belts, require highly sensitive product handling. Equally, sensitivity and high precision are also required for weighing each individual container. Highly specialised checkweighers take over this task. They use a rotary star wheel system to determine the weight.

A format-specific star wheel accepts the containers as they arrive at the checkweigher inlet, transferring them from the conveyor belt to a weigh cell. Incoming products run into a central recess located in the star wheel from which they are briefly released for the weighing process. Depending on the size of the product, this technology enables up to 400 weighing operations per minute. Products with the wrong weight are ejected either while still in the star wheel or immediately thereafter. In any case, the entire product flow is weighed and documented completely inline.

Pioneers of the aerosol industry in Germany

Since it was founded in 1960, Zellaerosol GmbH has specialised in the production and filling of aerosols and liquid products. Zellaerosol, with a variety of certifications, a manufacturing licence in accordance with AMG Section 13 for human and veterinary medicines and fifteen sophisticated production lines for aerosols and liquids, is one of a small group of German contract aerosol manufacturers that can look back on many years of practice and experience.

At its approximately 18,000 m² headquarters in Zell im Wiesenthal near Freiburg, the plant has optimum conditions for implementing maximum quality requirements for its customers. "Meeting product quality on a long-term basis is the key component of our quality policy," explains Dr Thilo Fessmann, Managing Director of Zellaerosol. "This is why we take the utmost care when selecting our suppliers and technology partners."

The products produced at Zellaerosol include a large number of cosmetic products, particularly for hair and body care, pharmaceuticals and technical articles, such as impregnation sprays, household cleaners, lubricants, paints and varnishes. >>

Checkweighers with rotary star wheel weighing system

WIPOTEC-OCS checkweighers of the HC-A-IS type, as found at Zellaerosol, are specifically designed for fully-automated weight checking for use in filling plants. Their rotary star wheel weighing system enables optimum product handling for tall, slim containers, such as aerosol cans, plastic or glass bottles, and guarantees precise inline weight checking. The easily interchangeable two-part star wheel takes over sorting, product transport within the scales and return of the products to the

production line. The HC-A-IS can be integrated very easily in existing filling lines without having to open the existing transport route. The checkweigher can also be equipped with feedback or trend control for filling machines.

100% checking instead of random sampling

The inline weight checking solution implemented by WIPOTEC-OCS has many advantages for Zellaerosol and is completely trouble-free from the production point of view. It is therefore very easy to demonstrate 100% compliance with the prepackage directive. Production Manager Jürgen Melch is also impressed with the WIPOTEC-OCS weighing technology. He credits the Kaiserslautern based high-tech specialists with a sophisticated weighing concept that is distinguished by very good product management, works trouble-free and can quickly and easily be integrated in the production process.

There are currently seven checkweighers in use in Zellaerosol's production section. All the machines are networked using the WIPOTEC-OCS software solution Comscale so that all relevant production data, such as number, rejected products and weight, can be called up at any time on any connected system thanks to seamless data acquisition. "For me, that means maximum production transparency," says Jürgen Melch. Dr. Thilo Fessmann also appreciates this: "The more timely the information, the faster we can respond."

Use in potentially explosive areas

WIPOTEC-OCS explosion-protected checkweighers are used in potentially explosive aerosol filling zones. They are equipped with an antistatic transport system to prevent the formation of dangerous sparks due to static discharges. Pressurised enclosure of the operator panel prevents any potentially explosive atmosphere from getting into the interior of the device. The operator panel can also be installed outside the potentially explosive area for additional protection of the operating staff. ▲

Zellaerosol GmbH, production facility Zell. © Zellaerosol GmbH



Our Customer Zellaerosol GmbH

Zellaerosol was founded in 1960 by Dr. Ernst Fessmann and Dr. Dieter Fessmann. The company is one of the pioneers of the aerosol industry.

In addition to all variations of contract manufacturing, Zellaerosol is also a particularly strong partner for its customers in the full-service sector. The company, with a manufacturing licence in accordance with AMG Section 13 for human and veterinary medicines, is still an independent family business, currently headed by Dr. Thilo Fessmann.

Employees: approx. 100 in Germany

Location: Zell im Wiesenthal

Products: Aerosols and liquid products

More information:

🌐 www.zellaerosol.de

/ Foreign Body Detection in Canned Fish

Every year more than 100 million cans of fish are produced at Saeby Fish Cannery Ltd. in northern Denmark. Inspecting every single one of them for contamination by foreign bodies is one of the greatest quality assurance challenges faced by Saeby Fish.



Only high-performance X-ray detectors that can keep pace with the speed of production are actually able to do this while performing critical quality control functions. The 100% inspection carried out on all production lines means that every individual can is examined for contamination prevent recall campaigns. These would have dramatic consequences for a manufacturer with an 85% export share whose products are sold in 14 European countries and also worldwide. Using 100%

inspection of the canned foods, Saeby Fish safeguards its reputation built up over decades and also consumer confidence in its products.

More than mere metal detection

With the installation of X-ray inspection systems at Saeby Fish, it also became possible for the first time to detect contamination due to plastic parts, shards of glass and ceramics and tiny stones. Even stainless steel is now detected as a source >>

of contaminants, thus safely eliminating the risk of contamination resulting from bits of deep-sea fishing equipment or machine parts.

The X-ray inspection systems also detect non-magnetic steels and non-ferrous metals (e.g. copper, lead, nickel, tin or zinc). None of these contaminants are detected by conventional metal detection systems, which are specified for use in many sectors. The reputational risk due to food contamination is thus drastically reduced. Contaminants of this type represent a large proportion of the contamination in food worldwide which result in product recalls.

Inspections at top speed

The production speed of the lines is 80 metres per minute; according to Kent Christiansen, Technical Manager at Saeby Fish, the WIPOTEC-OCS X-ray scanners never limit the maximum possible throughput of the lines. X-ray scanners in all production lines inspect the cans at maximum possible production speed. The inspection systems are mirror-inverted, so the employees can monitor two parallel lines from a central position during ongoing production. The ejection process for rejected products is monitored by photoelectric beams which are mounted in the ejection container and the material flow in the infeed area.

High-performance camera detectors are responsible for the shortest possible inspection times. Their high-resolution and extremely sharp X-ray images form the perfect starting basis for the integrated image processing software. It requires only fractions of a second to inspect the contents of the cans that flash past at top speed. Integrated uncomplicated water cooling replaces the oils which are necessary as a cooling medium in conventional inspection systems. A product space free of cables and motors means quick and easy cleaning. The stainless steel X-ray inspection systems are specified to protection class IP65.

Contamination – and surprised scientists

On average, the X-ray inspection systems detect one to two contaminants per day; these are mostly rejections due to bits of fishing equipment. However, as Kent Christiansen explains, the inspection system also traces and identifies markers attached to mackerel by marine biologists around the world; the scientists are very surprised every time these markers are returned to them. For the purpose of complete traceability, images of the rejected products are archived in the X-ray scanner's image data memory. The false detection rate is close to zero; however, every can of fish is checked again manually for safety reasons and to verify the monitoring processes.



Canned mackerel: production line with integrated X-ray inspection system



The inspections systems enable us to detect test specimens with a one millimetre diameter in our canned fish.

Kent Christiansen

Technical Manager at Saeby Fish Cannery Ltd.

Testing the X-ray scanner:
Kent Christiansen, Technical Manager at Saeby Fish Cannery Ltd. (left)
and Torsten Götzmann, Senior Sales Manager at WIPOTEC-OCS



Year-round production

In contrast to seasonal fishing, which lasts only two months for mackerel, production in Saeby carries on all year round. The mackerel transported in iced water tubs delivered by truck from the port in Hirtskals, Denmark to the production facility are individually frozen in the factory using a special IQF (Individual Quick Freezing) method, i.e. the fish are individually frozen in the shortest possible time at -30 degrees Centigrade. The warehouse or storage capacity for the freshly landed fish at the factory premises covers an area larger than two football fields. As the freezing process is extremely fast, the structure, colour, aroma and flavour of each individual fish is retained when the product is thawed for further processing (in contrast to freezing bulk fish in blocks).

Traceability

Due to the freezing method used during downstream year-round production – in this case 24,000 tons of fish a year – Saeby Fish can trace the contents of every single can back to the fishing vessel, fishing zone and date. This closes the circle of process safety in terms of production-wide quality assurance, from the landed product of mass fish to the saleable end product as a canned food. ▲

Our Customer Saeby Fish Cannery Ltd.

Every year more than 100 million cans of fish leave the factory of Saeby Fish Cannery Ltd. The manufacturer, one of Europe's largest producers of canned fish, ensures the quality of its products with consistent 100% inspection of all individual cans.

To consistently eliminate foreign bodies in its products, which are sold in 14 European countries and beyond, the food manufacturer relies on SC-3000 X-ray inspection systems from WIPOTEC-OCS.

Employees: approx. 170

Location: Saeby, Denmark

Products: Canned fish (prepared mackerel products)

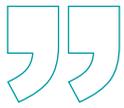
More information:

www.saeby.com

/ Relocating Production, Reducing Costs

Increasing cost pressure is one of the main motives for relocating production. To ensure that the math adds up from the outset, companies also need to keep an eye on commissioning costs.





*As a result,
EMFR Weigh Cells
deliver exact
measured values,
without
any loss of time
or quality,
even when
exposed to severe
vibrations.*

According to a survey by the Association of German Chambers of Industry and Commerce (DIHK), a large number of German companies are planning to relocate production abroad¹. Experts see the high labour costs in Germany as being one of the reasons for a partial shift of production or for relocating or for relocating entire production facilities. However, increasing globalisation and the need for an increased presence in these countries are also used as arguments. The (alleged) savings potential due to a relocation is accompanied by the costs for dismantling, transport and logistics, commissioning, validation and qualification at the new location. This article uses a pharmaceutical production plant as an example of how to significantly reduce commissioning costs by using special components – in this case Weigh Cells. In addition, it provides planners and designers with indications of the advantages that AVC-assisted Weigh Cell technology may offer from a qualitative and quantitative point of view for machinery and systems whose operating locations are uncertain.

Pharmaceutical sector: Investments have risen by a third

Using the development of the pharmaceutical industry as an example, the DIHK survey shows that economic and geopolitical developments are equally relevant. The countries of Africa

and the Middle East are becoming increasingly important for the pharmaceutical industry as well as other branches of industry. Although the political situation continues to cause uncertainties, the economic potential in African countries such as Tunisia, Egypt, Kenya and Ghana speaks in favour of these locations. The situation is different in the Middle East, where stable oil supplies in particular provide opportunities for all those whose production processes are characterised by high energy consumption. This also includes the pharmaceutical industry which, according to the Industry Report², is still one of the fastest growing sectors, despite crisis-related market downturns. In 2018, for example, those responsible invested almost a third more in plants, buildings and machinery than in the previous year. While debates about Brexit and negative forecasts are fuelling discussions about the advisability of relocating production, at the same time it is also possible to observe trends in the opposite direction. Many companies are returning to Germany and investing in their production here.

Relocation must be profitable

Relocating production, regardless of motivation and direction, always brings with it a multitude of challenges. The change of location alone is cost-intensive in the first place, even if the operating costs on site are comparatively low. In addition, calculations must include an estimated 8–15% of the total plant price for recommissioning. If, for whatever reason, commissioning gets out of control, additional costs are incurred due to production downtimes. In this case, expertise and good project management can help speed up many things. Dismantling, packaging and transport must be followed seamlessly by re-assembly and commissioning. Added to this is a design qualification, which checks the machine concept, or an installation qualification for the machine equipment and installation, including documentation. The operation qualification (machine function with function test and simulation) and the performance qualification take up further time in order to demonstrate the technical performance. At the end of all these steps, simplified for our purposes here, the factory and site acceptance tests are signed and pharmaceutical production can begin. In the case of selected preparations³, if commissioning is delayed by even just a few hours, this can quickly cost pharmaceutical companies millions. >>

¹ "Auslandsinvestitionen steigen weiter – Inland profitiert", Report 2018 Deutscher Industrie und Handelskammertag [Association of German Chambers of Industry and Commerce]

² Industry Report, 4th revised edition 2018, published by VfA & Institut der deutschen Wirtschaft, Forschungsstelle Pharmastandort Deutschland [German Economic Institute, Research Centre for Germany as a Pharmaceutical Location]

³ www.wiwo.de/unternehmen/industrie/teure-medikamente-pillen-preise-an-der-schmerzgrenze-/11336558.html



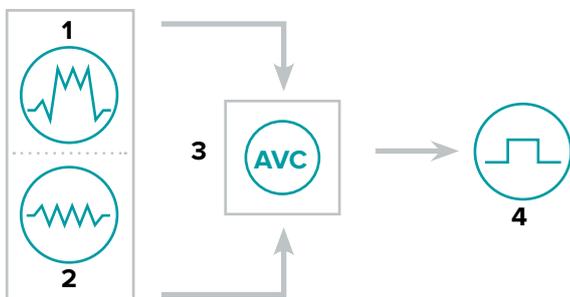
The heart of WIPOTEC: Weigh Cells for various applications

AVC Active Vibration Compensation

The simplified illustration of the operating principle of WIPOTEC's Active Vibration Compensation technology shows how it works: The sensors detect tilting to the left and right, backwards and forwards and all upward and downward movements. The AVC also owes its name of "3D sensor" to the fact that the sensor system covers all three axes.

More information:

www.wipotec-ocs.com/catchweigher/avc-e-paper



- 1 Measuring signal with interference signal superimposition
- 2 Interference signal
- 3 Signal processing
- 4 Resulting useful signal without interference

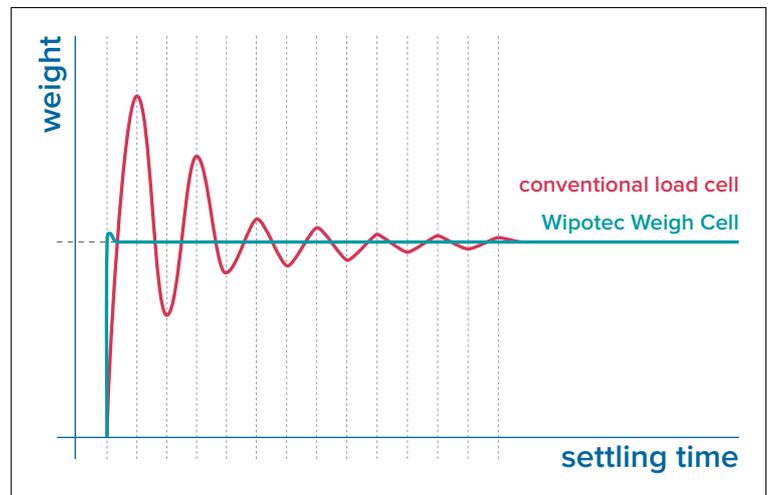
Speeding up commissioning, ensuring production quality

What paths can machine and plant constructors, but also manufacturing companies in all industries, take to avoid scenarios like these, preferably at the design stage? How should components be designed, particularly those intended for sensitive areas such as weighing in quality control, to speed up commissioning and to rule out errors arising due to relocation? Irrespective of whether they occur in a hall, a plant or another country? One possible solution is the proprietary Active Vibration Compensation technology (AVC) from WIPOTEC, a sensor-based measurement technology to compensate all types of vibrations in production processes. AVC sensors are available individually but are also installed as standard components in Weigh Cells that are based on the principle of electro-magnetic force restoration (EMFR). This represents a technology that is characterised by extremely short settling times and sampling rates of one millisecond. The Weigh Cell design is based on milled aluminium monoblocks in which AVC sensors are installed. As a result, EMFR Weigh Cells deliver exact measured values, without any loss of time or quality, even when exposed to severe vibrations.

Effectively filtering out vibrations

A look at the various causes of vibration that AVC can compensate for shows that using this weighing technology for quality assurance is not restricted to the production of pharmaceuticals. One-off impulse forces, which are reached with high accelerations in feed axes, can be filtered out just as well as disturbing forces which act on a production line via the foundation. The AVC sensors also filter out classic vibrations, such as those

Settling behaviour of a
WIPOTEC Weigh Cell
compared to a conventional
load cell with strain gauge



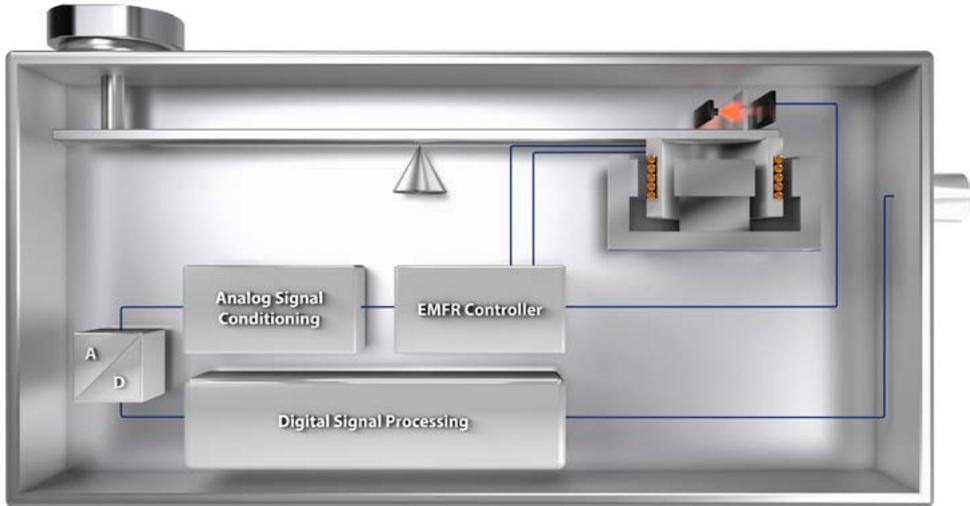
caused by drive units of machines or due to imbalance forces, making them potentially useful for all manufacturers. It shows that Weigh Cells with AVC sensors can be used cross-sectorally to measure product weights accurately. The patented AVC technology is a black box. The precise mechanical design and the algorithms working in the background are proprietary WIPOTEC company technologies.

Freedom of engineering design

This feature allows a constructive adaptation of the Weigh Cell to the machine chassis. There is no need for a separate frame for the Weigh Cell. AVC-assisted Weigh Cells will filter out the

interferences at the installation site and always deliver valid data. Their ability to detect vibrations and respond immediately makes Weigh Cells with AVC sensors optimum components wherever exact weighing results are absolutely essential, such as in the production of pharmaceuticals or food manufacturing. This also applies to systems whose target destination in the plant has not yet been completely defined, or where it is already foreseeable during the building phase that a production relocation could be imminent. Another application is machinery and systems as part of a study: If it is clear from the outset that a machine will be used alternately at different locations, there is a risk that the measured values will be falsified, even though >>





EMFR weigh cells enable weighing results at lightning speed

all the production parameters are exactly the same. To prevent this and remain flexible, even if room A has a different floor covering from room B, or there are machines running near room B whose vibrations have no noticeable effect on the test production, Weigh Cells with AVC sensors are a sensible alternative.

AVC guarantees precise weighing results

The fact that AVC Weigh Cells can generally filter out all the vibrations across all three axes illustrates the potential for quality control in processes which are running as well as for recommissioning in the case of planned plant downtimes or undesirable breakdowns. Once installed, Weigh Cells equipped with AVC guarantee precise weighing results and accelerated validation and qualification during commissioning. AVC-assisted Weigh Cells are components that make it easier to calculate the total cost of ownership. Parameters that were previously difficult to predetermine when calculating the total costs of a system become more predictable and transparent when using AVC-assisted Weigh Cells: from the acquisition and energy costs to repair costs and, last but not least, maintenance costs. Put simply: In terms of quality assurance, anyone currently planning

a machine or system, or who is having one designed and commissioned, need not fear a cost explosion due to complex qualification processes or even incorrect weighing results, either after a move within the company or a site relocation. The use of AVC-assisted Weigh Cells promises cross-sector security and the potential to reduce costs in times of an increasingly globalised location policy. ▲

/ Weighing Technology for Pharmaceutical Cosmetics

There is hardly any packaging process that does not involve weighing technology in some form. Thus, in packaging plants for pharmaceutical and cosmetic products as well, much revolves around inline weighing technology in packaging machines and lines.



Whether inline weighing is the method of choice or if weighing technology in the form of line-integrated checkweighers is preferred is essentially down to the application. Both techniques have their own advantages and for both technologies there are two companies involved in an extremely successful collaboration.

IWK Verpackungstechnik GmbH (Stutensee/Karlsruhe) is well-known for packaging solutions in the pharmaceutical and cosmetics sector. This applies to tube fillers and cartonners as well as complete packaging lines. The WIPOTEC Group is known for its checkweighers and inspection solutions (WIPOTEC-OCS) as well as for Weigh Cells and Weighing Kits

developed by WIPOTEC Weighing Technology. The great innovative strength of the two associated companies is reflected not least in their intensive collaboration in the key technologies of these areas.

The innovative technology WIPOTEC brings to this partnership is based on monoblock weigh cells which are used in all checkweighers and also in all weighing kits at IWK. The key benefit of a WIPOTEC Weigh Cell is its accuracy with the shortest possible measuring times which gives it significant advantages in many production environments. These include, in particular, packaging processes in the pharmaceutical, cosmetic and food sectors since they generally operate at high speeds and work with high throughputs. >>



Pick & Place inline weighing as a cost-effective alternative to belt scales

Checkweighers:

Line-integrated weighing technology

There are two approaches to integrating weighing technology into IWK packaging and production systems for pharmaceutical cosmetics. This is the first to integrate: In the tube filling machines, the individual tubes are fed to the machine manually, semi-automatically or fully automatically depending on the equipment version. After filling and sealing the tubes, checkweighers from WIPOTEC-OCS are used which results in significant product savings. The reason for this is the trend control of the tube filling machines which is based on the control signals of the checkweighers. It enables active monitoring of the actual contents during the filling process and minimises overfilling and underfilling. The checkweighers can communicate directly with the filling control system of the tube filling machine. Integrated in the line, checkweighers run synchronously with the IWK tube fillers in single-lane and twin-lane operation. The throughput is up to 240 tubes per minute.

Other advantages of line-integrated weighing technology

Short commissioning times are a priority. Product inspection with the best possible transport can be guaranteed thanks to technical coordination between the machines, the synchronised motors of the conveyor belts of tube filling machines and

checkweighers, coordinated waiting cycles and synchronised restarts. It is still possible and advisable to use checkweighers downstream of cartoners, where a weight check for completeness is carried out. Additional attribute checks are thus possible depending on the application, for instance a tab check (check for the correct closure of folding boxes). Rejected products are ejected into separate containers according to the cause of the fault. The compact designs of the WIPOTEC-OCS solutions allow the planning of lines with very short overall lengths.

Weigh cells: Pick & Place inline weighing

Inline weighing with Weigh Cells is an alternative option for integrating weighing technology into packaging lines for pharmaceutical and cosmetic products. This version is frequently used in systems with very high throughputs. Here, Weigh Cells which are integrated in tube filling machines, take over the tasks of the inline checkweighers used in the other solution. This mechanically more complex solution can be implemented even more compactly than the version with checkweigher weighing function. It also enables higher throughput (up to 800 tubes per minute), made possible by scalability and equipping the machines with up to 16 Weigh Cells that are fed in parallel.

In this Pick & Place inline weighing, the weighing function is integrated directly into the machine, enabling a further reduction in the space required for the weighing process and subsequent ejection of the underweight tubes. Difference compared



*A much more
precise measurement
and fully automatic
readjustment
guarantee
the filling weight.
In three-shift
operation,
this means an
amortisation after
only one year!*

Ole Normann

Junior Product/Sales Manager, IWK

to using dynamic checkweighers: A transfer system is used to place filled and sealed tubes directly from the tube filling machine onto static scales; the tubes are weighed and then placed into the cartoner. The Weigh Cells' precise functionality permits implementation for as little as two grams of tube content – a frequent application in the pharmaceutical sector.

No product losses as a result of underfilling or overfilling

Both methods – the use of checkweighers or inline weighing with the help of weigh cells – enable complete control of each individual tube with immediate feedback to the filler. With both solutions, information about the weight value to control the filling heads is available very close to the process. The control parameters enable detection of the smallest deviations promptly and very precisely. This means that corrective interventions can be carried out in time. The result is consistently reliable fill volumes without costly product losses owing to underfilling or overfilling. ▲

IWK Verpackungstechnik GmbH



Our Partner **IWK Verpackungstechnik GmbH**

IWK Verpackungstechnik is the worldwide market leader of packaging machines for the pharmaceutical & cosmetic sector. The company offers tube filling and cartoning machines as well as solutions for complete packaging lines via primary, secondary, and final packaging.

For more than 125 years, IWK Verpackungstechnik has distinguished itself as a reliable partner for leading pharmaceutical & cosmetic companies. In addition to high-quality products, IWK offers comprehensive consulting & services for all packaging projects.

Employees: 450

Location: Stutensee/Karlsruhe

Products: Tube filling machines, cartoners, transfer systems

More information:

 www.iwk.de

/ Opportunities in China

Last year, WIPOTEC accompanied a delegation from the Kaiserslautern Economic Development Agency to the Yangtze River Delta in China. Those taking part reported on the results of the trip and their impressions during a panel discussion.



Strengthening contacts, extending relationships. A 13-member business delegation, led by District Administrator Ralf Lessmeister and Mayor Klaus Weichel, travelled to China in September last year. Volker Ditscher, Head of the Business Unit Track & Trace at WIPOTEC-OCS was also part of the group. Representative offices of the joint Economic Development Agency WFK were opened in Yangzhou, Shanghai and Foshan. In the future, they will provide contact points for companies from the Kaiserslautern economic area in China's two most

successful economic regions. The aim is to specifically encourage the exchange of start-ups as well as small and medium-sized companies from the high-tech sector.

Kaiserslautern, like Ludwigshafen and Mainz, is a member of the Sino-German Industrial City Alliance ISA which links up 43 cities with more than 100 million inhabitants. WIPOTEC already has its own subsidiary in China with WIPOTEC-OCS (Shanghai) Co. Ltd. and is also represented in Shanghai with its own branch office.



*In China,
Made in Germany
stands for
German
engineering,
innovative strength,
quality and
virtually built-in
reliability.*

Volker Ditscher

Director Global Sales
Track & Trace

China experts provide answers

Those taking part reported on the results of the trip during a panel discussion. At an event attended by 120 representatives of regional businesses and institutions in the Deutschenorden-saal of Kaiserslautern Kreissparkasse, the delegation members were available to answer visitors' questions and talk about the results of their trip and the experience gained.

They explained that the requirement for economic co-operation between the two countries is contacts at political and economic level. Klaus Weichel, Mayor of Kaiserslautern, said the trip to China highlighted this. Stefan Weiler, CEO of the Economic Development Agency, talked about a stable network that has been built up in the meantime between Kaiserslautern and the region around Shanghai. According to Weiler, the region already has many contacts with China – not only through research institutes and universities but many of the region's companies are also active in China, including hidden champions like WIPOTEC.

Cultural understanding and communication with each other

Rujia Wu established a start-up in Kaiserslautern in the tool-making and plastics processing sector which produces plastic parts for cars; he pointed out the different communication behaviour of both cultures. The Chinese attach great importance to their counterparts being able to save face and therefore tend to describe problems more indirectly. Another member of the trip, CEO of a consulting company, pointed out that in China products which did not have the same lifetime as German products were also allowed onto the market. It was noted that manufacturers learn by identifying faults and improve their products as a result. It would be necessary to take these differences in entrepreneurial mindsets into account in Sino-German collaborations.

Volker Ditscher (WIPOTEC) emphasised that an understanding of the Chinese culture and a high level of willingness to communicate are among the factors for economic success when working with Chinese people. He maintained that reading between the lines is important in China since questions do not receive direct answers. He said this required a key to understanding how to communicate with Chinese business people. WIPOTEC already has 15 years' experience in the Chinese market and is well-known in China as a supplier of premium products. The Chinese appreciate German engineering, innovative strength, quality and the virtually built-in reliability of products with the "Made in Germany" seal.

Max Essig from FIRU GmbH, the Kaiserslautern-based regional planning office, was impressed by the speed with which large-scale construction products are implemented in China. He said that Germany could certainly take a page out of China's book in that area. Kai Landes, head of the Kreissparkasse, concluded the interesting discussion which he hosted at his bank by saying that all that was required now was interested and ambitious people who were willing to seize the opportunities and make the most of the potential and possibilities. ▲

/ Globalised Markets

WIPOTEC in the USA

According to Michael Schläger, Head and Vice President WIPOTEC-OCS USA, our customers in North America increasingly see WIPOTEC as an important technical partner for improving their business processes. This added value is important in many procurement decisions. WIPOTEC offers this to all customers, regardless of location, market segment or product focus. It means they get a solution, delivered by an engineering partner that meets their requirements perfectly.



*Our plans
for
the future
can be
summed up
in one word:
Grow!*

The first quarter of 2020 has been a highly successful one for WIPOTEC-OCS USA in Lawrenceville, a suburb of Atlanta, Georgia. The directors of the business segments Mail & Logistics, Healthcare, Food and Services managed to achieve impressive expansion in their business areas. According to Michael Schläger, this is due to the improvement in cross-business communication and the fact that they are targeting specific market segments.

Food and healthcare

The US branch anticipates excellent business opportunities in the food sector, most notably for product inspection using X-ray/vision machines and other new solutions currently being developed in Kaiserslautern. In the healthcare sector growth opportunities lie in pharmaceutical aggregation, serialised applications in cosmetics, and in medical cannabis production for checkweigher applications and serialisation machines.

Multiple checkweighers enhance productivity in logistics

In the Mail & Logistics sector, growth opportunities relate to both existing and future customers. The new multiple checkweighers permit even shorter product gaps at higher transport speeds compared to single-interval scales. This enables higher throughput even with different package sizes. A clear competitive advantage.

North America knows that WIPOTEC machines are reliable, extremely efficient and state-of-the-art.

Globalisation of markets

For Michael Schläger, it is interesting that customers are not really interested in where the machine they have ordered will ultimately be delivered from. In the end, they expect the machine to be 100% capable of fulfilling its job and also to have spare capacity. For example, faster speed, higher accuracy or modular expansions.

Michael Schläger
Vice President WIPOTEC-OCS USA

In addition, they expect expert advice from product managers, targeted consulting, the best possible services, short delivery times, punctual delivery and a fair price.

Short delivery times, however, are not everything. One of our competitors has a final assembly plant in the United States. Although this enables them to deliver machines faster, they are often not exactly what the customer needs. And this is where, according to Schläger, one of WIPOTEC's unique selling points comes into play: As an engineering partner, we offer the customer the opportunity to develop the solution that perfectly matches their requirements. In this case, globalisation creates customised solutions for US customers.

Globalisation opens up other opportunities, such as global account agreements, as the one recently concluded with General Mills, headquartered in Minneapolis, Minnesota. General Mills is the world's sixth largest food producer and the world's largest flour producer. It produces muesli bars, sports drinks, cereals and yoghurts.



Three Questions to Michael Schläger

What new tasks are you facing as Head of WIPOTEC-OCS USA?

Naturally, all the business tasks involved in this position as Vice President. They include working with the management and colleagues at headquarters, financial reporting, and developing, and successfully implementing our business plan. Together with my team, of course.

In the first few weeks, however, it was a case of adjusting to a different culture. Understanding the American way of life, and getting along in both business and private spheres. My American colleagues were a great help to me greatly with both.

What are your current challenges?

Pricing and ability to deliver are always an issue, but that's probably true worldwide and for all market participants. Recruiting, hiring and retaining good employees is always a challenge. We are introducing programs that will help us to better deal with this challenge, in particular we're using the entire range of digital media to advertise vacancies.

How do you see the company developing?

Our business plan is challenging. But we have marketable and competitive products, and we're visible and accessible to our customer base. The signs are pointing towards growth despite the coronavirus. I am absolutely positive that we will expand our leading role in the WIPOTEC Group over next few years with an uncompromising customer focus. However, the most important thing at this point is that it is simply fun to work here as a team that very much thinks and acts like a family. It is a great place to work with – let's not say unlimited – but definitely with a great many opportunities.

Michael Schläger is 56 years old and Vice President WIPOTE-OCS USA.

In his free time he likes to cook and then pedals his way back to a calorie balance on his racing bike. With success.

Customer requirements in the USA

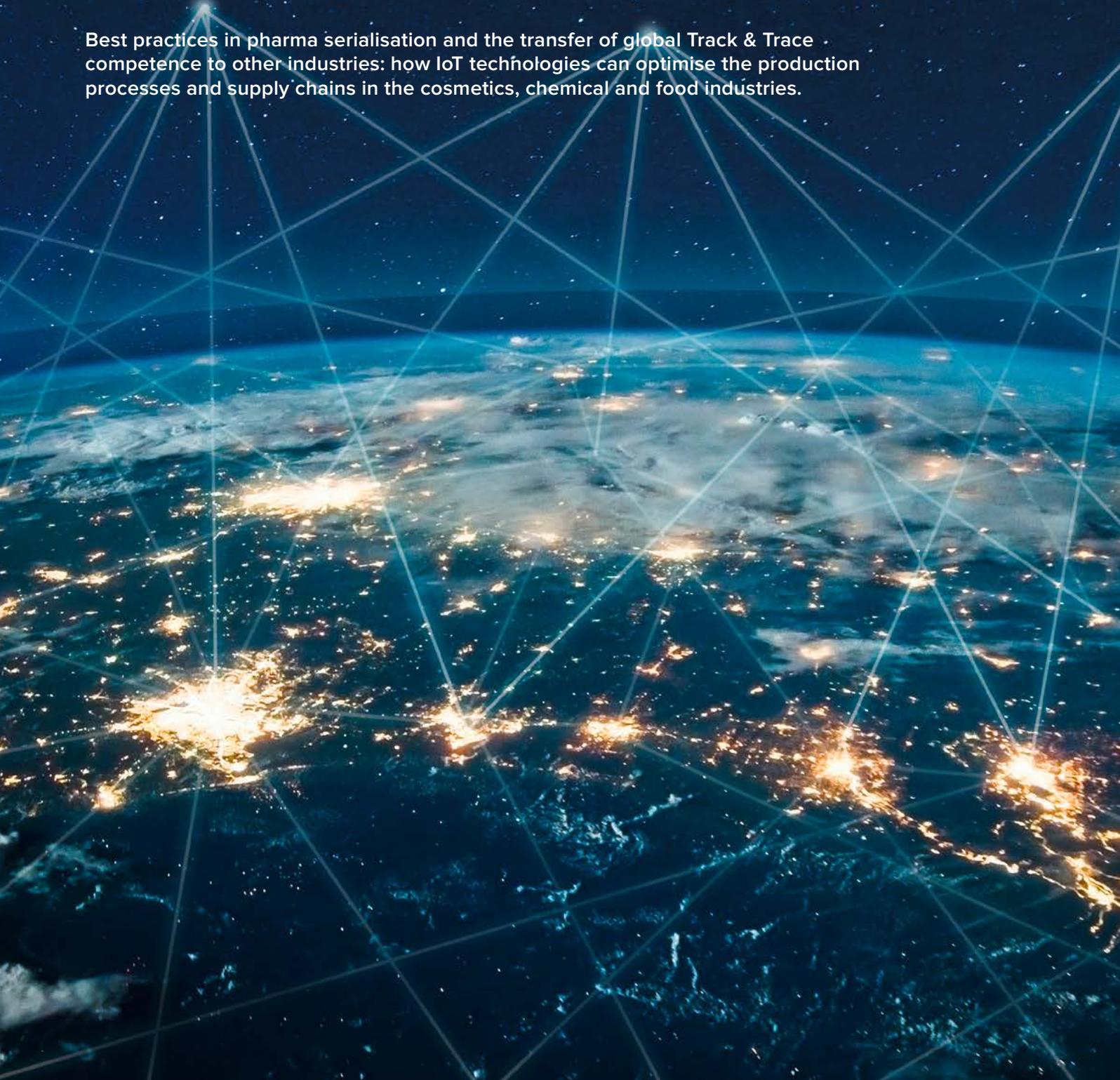
If you ask the head of WIPOTEC-OCS USA about typical American customer requirements, the answer is the increasingly short lead times that we face as a manufacturer and supplier. More and more customers wait until the last minute before ordering their machines. Sometimes customers have to react to sudden events, such as product recalls or capacity bottlenecks. They then need a machine immediately.

Schläger says, "We try to defuse this situation locally by having a supply of standard machines in stock for such emergencies." In most cases, they succeed in helping customers out of difficult situations.

The fact that WIPOTEC-OCS USA has become increasingly well known among US and Canadian customers helps in this respect. In recent years, marketing programmes have been expanded, particularly in the areas of digital advertising and social media. Michael Schläger wants to further increase the media reach and is focusing on articles with technical content and industry-specific solutions that are published in online and printed media. A dedicated website helps to make it as easy and convenient as possible for American customers and partners to cooperate with WIPOTEC-OCS USA. ▲

/ Track & Trace in the Era of Industry 4.0

Best practices in pharma serialisation and the transfer of global Track & Trace competence to other industries: how IoT technologies can optimise the production processes and supply chains in the cosmetics, chemical and food industries.



Demonstration of Track & Trace applications in a SAP environment



Singapore, 17 July last year: SAP, Movilitas and WIPOTEC-OCS welcomed visitors to the SAP Leonardo Center who wished to learn about increased supply chain integrity and efficiency, such as that already familiar from the pharmaceutical industry, for example. There is also an increased demand for solutions to similar problems in the cosmetics, chemical and food environment. Here, application examples can also highlight how to achieve effective protection against product counterfeiting.

Since then WIPOTEC-OCS has been demonstrating the possibilities for consistent consumer protection based on the example of an aggregation line set up within this SAP innovation centre which is central to Asia. SAP ATTP provides unique serial numbers via a cloud server of our partner Movilitas. At the end of a batch, the order data is returned to SAP ATTP via the cloud and linked to an OEE and blockchain module of SAP. WIPOTEC-OCS not only addresses the usual core issue of product traceability but also topics which have a direct impact on the ROI of such acquisitions and bring general economic advantages.

OEE and blockchain modules

Determining OEE data (overall equipment effectiveness) can reveal appropriate potential for optimisation. For example, it is possible to determine and assess the causes for lack of machine availability (or output), such as set-up and cleaning times, poor planning or unplanned interruptions to production.

The blockchain's very high security factor means that information cannot be changed and thus cannot be tampered with. The cosmetics, chemical and food industries can also make good use of this to verify the authenticity and origin of products. In particular, it is possible to use such OEE and blockchain technologies to operate preventive maintenance or to link end users to the lifecycle of products. ▲



/ Quality Assurance of Folding Boxes

End-of-line checkweighers in high-speed packaging lines

How does a pharmaceutical market leader in high-speed packaging lines ensure product quality? Headquartered in Tokyo, Astellas Pharma is one of the world's top 20 pharmaceutical manufacturers. Meppel (Netherlands) is home to one of the production facilities of the research-based drug company, which is one of the market leaders in Germany, particularly for its therapeutic products in urology and transplant medicine. End-of-line checkweighers for the quality assurance of pharmaceutical products packaged in folding boxes are used in all packaging lines.

Maximum performance in large runs

At Astellas Pharma, end-of-line checkweighers used in Uhlmann packaging lines take over the final quality assurance of products packaged in folding boxes. Downstream of a blister pack machine with subsequent cartoner, the checkweighers achieve a throughput of up to 500 products per minute. The machines operate in slave drive, which means that they follow the upstream cartoner in respect of their speed. The checkweighers' slave drive perfectly illustrates the high integration depth of weighing technology in packaging lines at Astellas. The simultaneous movement profile of the checkweighers, which is synchronised with the cartoner by means of signal coupling, reliably prevents possible slippage of the products caused by differences in speed. The machines also have an automatic restart without manual intervention and without clearing the conveyor by the operator.

Endless packaging variations

Production orders at Astellas come from global clients and customers of their products, and the variations in their packaging are correspondingly diverse. The huge range of variations that can be implemented starts with the number of blister packs contained in a folding box. There may be one, two or even more (the maximum possible is 14). Whether a folding box



Checkweigher and cartoner are operated via a common display, which makes operation much easier with a line length of 27 metres.

Harrie Hens

Technical Project Manager European
Technology Division at Astellas

actually contains all the blister packs is reliably determined for each individual box with a precise weight check performed by end-of-line checkweighers. The belts travel at speeds of up to 83 metres per minute.

Everything present and correct – even the package insert

The precision of the measurements is so high that it is also possible to determine with absolute certainty whether the folding box contains the package insert. If the checkweigher identifies a faulty product based on weighing results, on account of an incorrect number of blister packs, missing tablets or lack of package inserts, the corresponding folding box is reliably ejected by a machine-specific rejection system. Cross-checking of the rejection, combined with a mechanical product barrier as a removal zone, reliably prevents rejected products from remaining in the product flow. >>

Harrie Hens, Technical Project Manager at Astellas (back) with Michael Louis, WIPOTEC-OCS, in front of a W 300 checkweigher.



Our Customer Astellas Pharma

Astellas Pharma EMEA operates in 40 countries, including countries within Europe, the Middle East and Africa. Astellas Pharma Inc. is headquartered in Tokyo.

Astellas Pharma Europe Ltd. (Astellas EMEA) has its headquarters in Chertsey near London. Astellas EMEA also owns three production facilities and a research and development centre in Ireland and the Netherlands. The Group develops and produces drugs for a number of therapeutic applications, in particular urology and transplant medicine.

Employees: 17,500 (global Group)

Location (production): Meppel, Netherlands

Products: Drugs for therapeutic applications

More information:

www.astellas.com

Inspection of boxes and their contents

A special measuring algorithm ensures a 100% check of folding boxes even with very small product gaps. Weight measurement verifies their contents and affected products are reliably ejected in case of non-compliance.

The product packaging is inspected as it passes over the checkweigher; a double-sided tab check, performed via photoelectric beams, checks the folding box for proper closure. Folding boxes with open tabs are ejected. The compact design of the checkweighers results in a very small footprint in the overall line; all required pharmaceutical checks can be carried out over a short machine length of only 1200 millimetres. A product barrier with removal check ensures that no rejected products are transferred to the subsequent process. This also applies to those cases where an error has been acknowledged. This means that there is no need to empty the inlet area of the subsequent machines even in the event of a stop. An integrated product flow control initiates an alarm if additional products are introduced or products are removed from the product flow.

Design according to GMP guidelines

In compliance with the GMP guidelines (Good Manufacturing Practice), the checkweighers developed by WIPOTEC-OCS for the Uhlmann packaging lines have easy-clean surfaces due to bevelled edges and concealed cable routings, which is particularly important for manufacturers in the pharmaceutical environment. The maintenance effort is minimal; the drive motors are maintenance-free and no tools are required for belt or conveyor belt replacement. The slave drive ensures perfect product handling, equating to high availability and minimised downtimes. Required pharmaceutical safety equipment has been integrated: the checkweighers' complete safety guard ensures higher than standard protection. The machines can only be operated if the safety guard is closed. ▲

Mini X-ray Scanner with Maxi Performance

The SC-2000 offers functions otherwise only familiar from larger machines, on a very small footprint.

The globally successful SC product family of modular X-ray scanners from WIPOTEC-OCS welcomes its latest addition the SC-2000 "Mini". The only thing mini about this model is its space requirement – the new ultra-compact X-ray scanner requires an installation length of only 700 mm in the inspection direction. This length accommodates not only all the inspection technology but also the ejection of rejected products from the product flow. The inspection performance, on the other hand, is maxi which can easily be seen from the technical data: at an inspection speed of 50 metres per minute (optionally 90 metres per minute), the X-ray sensor achieves a resolution of 0.4 millimetres over the entire 200-millimetre scanning width.

400 products per minute

With a throughput of up to 400 products per minute, the SC-2000 is also suitable for use in high-speed production lines; the control cabinet, which is separate from the inspection unit, allows the unit to be set up at a distance, making it easier to integrate the compact inspection unit into existing lines.

The SC-2000 also has the familiar and convenient user interface found in the WIPOTEC-OCS checkweighers which can be easily controlled via the touchscreen panel. This applies to the (expandable) product memory for 100 products up to the infinitely adjustable X-ray output.

All-round machine with many talents

When it comes to inspection tasks, the SC-2000 has no weak spots. The compact X-ray scanner offers functionality that is otherwise only familiar from larger machines. Developed and designed for the highest demands in foreign body detection, in addition to checking quantity and shape, the scanner can also be used for counting, completeness and filling level checks. Among other things, the machines detect foreign bodies made of metal and glass as well as stones and plastics of varying density. WIPOTEC-OCS SC-2000 X-ray scanners thus minimise precisely the type of contamination that causes a large proportion of product recalls worldwide. The false rejection rates are extremely low for all inspection functions even at high inspection speeds. All inspection data including X-ray images are documented.

Hygienic Design

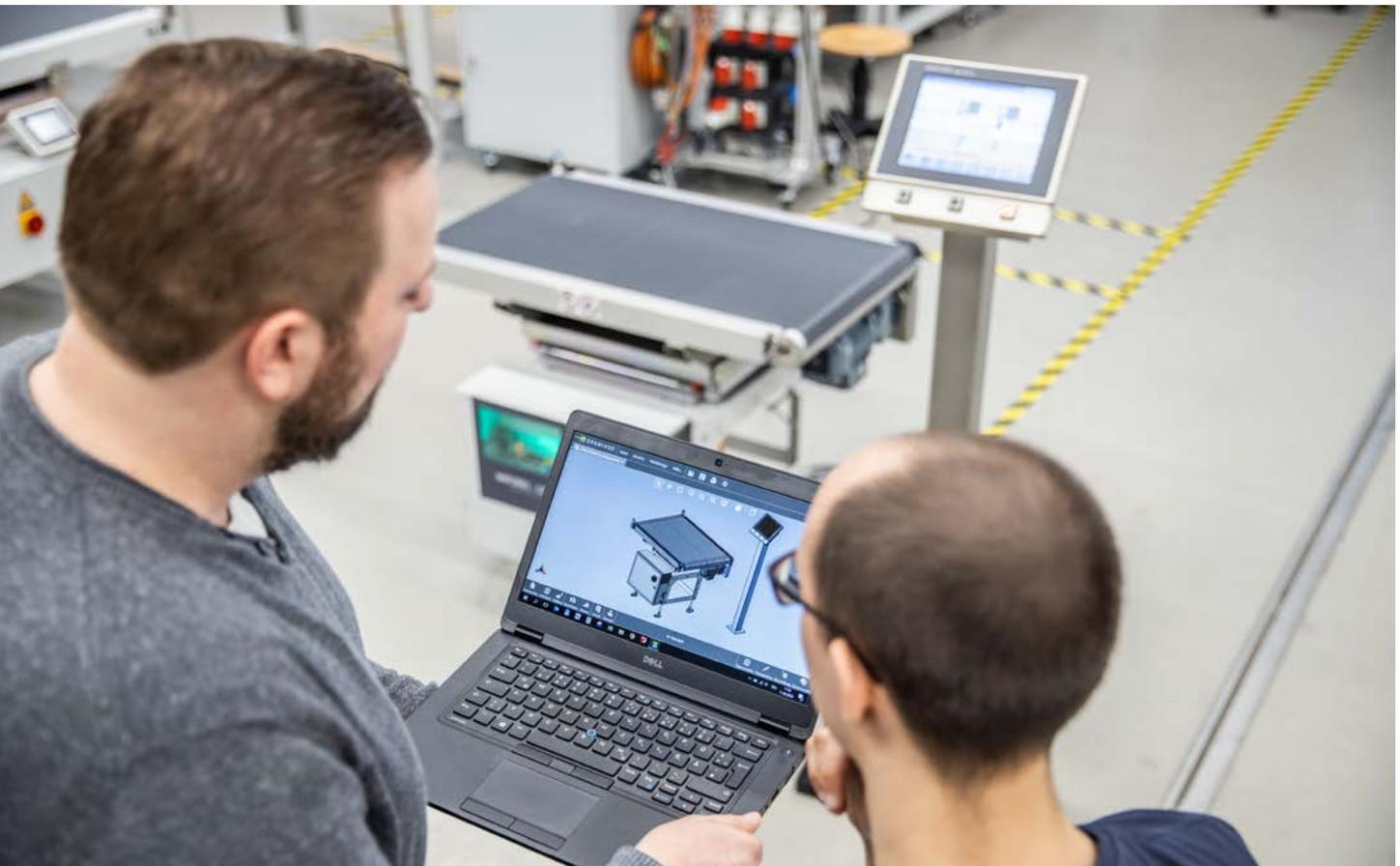
Hygienic design means designing WIPOTEC-OCS X-ray inspection systems so that cleaning is effortless. The SC-2000 is designed for fast and thorough cleaning in all applications,

regardless of what is transported through the compact scanning unit. This applies in particular to the C-shaped product space and bevelled surfaces which make it easy to carry out residue-free cleaning of the areas in contact with the product. Cleaning products and disinfectants as well as any liquids originating from the products inspected can drain away freely and parts which are removable for cleaning purposes are easy to dismantle. The core component of the stainless steel machines meets protection class IP65. They thus support the establishment of efficient quality assurance systems based on standards such as HACCP, BRC or IFS. ▲



/ Predicting the Future

A new catchweigher for warehouse and intralogistics applications uses process and machine data in real time to derive maintenance information. The aim is to use proactive maintenance to keep future downtimes as low as possible – or to avoid them altogether.



The HC-Warehouse scale from WIPOTEC-OCS pursues a new proactive approach to maintenance to keep downtimes low. Its concept of predictive maintenance enables needs-based servicing based on weighing and production data processed in real time. Predictive maintenance is one of the most important key components of Industry 4.0.

Catchweigher for warehouse and intralogistics sector

The HC-Warehouse is a new and particularly attractively priced catchweigher i.e. scale for the warehouse and intralogistics sector. As the first catchweigher ever in this price segment, it

offers the globally proven WIPOTEC-OCS bridge technology combined with a strain gauge Weigh Cell. The main feature which differentiates it from all other scales without a bridge frame is that, whereas a total of four strain gauge load cells in all four corners of the scales have to take up the weighing force in conventional strain gauge catchweighers and the total weight is calculated from the individual values of these sensors, the HC-Warehouse uses only a single central sensor in the scales. The weight of the goods is transferred to the central Weigh Cell via the bridge frame and its joints. In contrast to the conventional measuring principle with distributed measuring sensors, this exclusive weighing technology from WIPOTEC-OCS operates completely wear-free.



Predictive maintenance calculates the optimum maintenance times. Unplanned machine downtimes are avoided, maintenance and service intervals are significantly easier to plan.

Michael Rothfuchs
Product Manager Mail & Logistics
at WIPOTEC-OCS

Proactive instead of reactive!

The predictive maintenance concept of the HC-Warehouse clearly distinguishes itself from conventional reactive or preventive maintenance approaches. The optimum time for upcoming maintenance measures is determined prospectively; this makes it possible to avoid unscheduled breaks in production. This concept results in cost savings compared to routine, interval or time-based preventive maintenance work. Work is only carried out when it is really necessary. In addition to the reduction in maintenance and servicing costs, the predictive maintenance of the HC-Warehouse also improves overall equipment effectiveness (OEE).

How does predictive maintenance work?

To enable predictive maintenance to be carried out, the HC-Warehouse records all important process and machine data in real time during operation. This data relates to the condition of maintenance-relevant machine components, such as the lifetime of transport and toothed belts, any cleaning of the Weigh Cell due to contamination or any imbalances occurring in drive components. With the knowledge of which machine components have to be maintained and when, it is easier to plan resources for the maintenance staff and the downtimes themselves. The HC-Warehouse carries out the predictive maintenance in several work steps: After recording the process and machine data, it is stored, analysed and evaluated to calculate the probability of occurrence for maintenance-related events. The data is evaluated in relation to the operating life; maintenance-relevant messages can be displayed directly.

Advantages of predictive maintenance

The predictive maintenance concept of the HC-Warehouse leads to an improvement in profitability, as the machine downtimes are reduced and become plannable in all cases. Calculating and adhering to optimum maintenance times, taking into account the actual machine performance, has a positive effect on lifetime and avoids unnecessary maintenance work. The HC-Warehouse proactively notifies the maintenance staff about components that need to be replaced before a fault occurs. Maintenance and service intervals as well as spare parts management are significantly easier to plan; components are only replaced when necessary. Analysis of the machine data recorded makes it possible to improve the machine's performance and to achieve greater productivity in the long term, as there are opportunities to optimise setup and cleaning times and to prevent unplanned interruptions to production.

Attractively priced and highly productive

The HC-Warehouse is the first catchweigher which combines the technology of the bridge frames well-known from WIPOTEC-OCS high-performance scales with strain gauge sensor technology. Designed for a weighing range of up to 50 kilograms, it always delivers precise weighing results at transport speeds of up to 1.2 metres per second. The Weigh Cell is completely maintenance-free, all maintenance-relevant components of the scales are subject to a predictive maintenance concept. The scales themselves are extremely robust thanks to their powder-coated steel frame. Different weighing belt lengths and belt widths enable flexible integration into existing transport systems. The HC-Warehouse catchweigher meets protection class IP44 and is prepared for the communication protocols Ethernet/IP, Profinet and Profibus. ▲



/ Safe Food for All

Food production requires the highest level of responsibility. Even the smallest errors and carelessness can have devastating consequences for producers and consumers.



The production of food is a highly sensitive area where consumers place a great deal of trust in manufacturers. At the same time, consumers may demand the highest level of care from manufacturers and may expect that the food produced does not pose any health risks.

Manufacturers also have an interest in selling perfect products, because should foreign bodies get into the food, the consequences may be far-reaching. In the event of damage, there is not only the threat of considerable liability risks in the form of claims for damages and compensation for pain and suffering made by affected consumers. Damage caused by contaminated food may also result in product recalls and have a lasting adverse impact on a manufacturer's image. In Germany alone, the number of food recalls more than doubled between 2013 and 2018. In most cases, the cause was microbiological contaminants and foreign bodies such as splinters of glass, metal or plastic. Meat and meat products are particularly frequently affected, followed by milk and milk products. As a result, the question as to what can be demanded of a food manufacturer during production is of paramount importance – and frequently occupies courts all over the world when it comes to trials for damages.

Types of contaminants

Impurities can get into food in many different ways, contaminate it and thus expose consumers to what are sometimes considerable health risks. At the same time, food manufacturers run the risk of being held liable for the fault and the resulting damage. Generally speaking, any substance that cannot be assigned to either the product or the product class, or does not appear in a food's labelling, is a contaminant.

Accordingly, we can distinguish between three basic types of food contamination: chemical, biological and physical contamination. In terms of chemical contamination, toxic compounds in particular may endanger consumers. These compounds include



In Germany alone, the number of food recalls more than doubled between 2013 and 2018. In most cases, the cause was microbiological contaminants and foreign bodies such as splinters of glass, metal or plastic.

heavy metals, pesticide residues or additives for example. Biological contaminants which may get into a product include fungi, bacteria or pests among others. Physical contamination, on the other hand, is the introduction of foreign bodies into a food. In the food industry, foreign bodies are substances that are not suitable for consumption and are not part of the recipe. The decisive criterion here is the consumer's ability to notice them. Examples of this are splinters (wood, glass, metal, etc.), rubber and plastics.

Among the supplier products, it is not always the raw products that are contaminated and whose contaminants are not discovered during the production process. Metal particles, plastics, shards of glass and ceramics and small stones can also get into the food during production itself. Possible causes, for example, are maintenance work or cleaning operations without process controls and re-inspections, as well as malfunctions in the processing machines or in the processing operation. ▲

Types of food contamination:

chemical contamination, e.g. pesticides; biological contamination, e.g. bacteria; physical contamination, e.g. splinters.



/ Legal Liability in Germany

When is a manufacturer liable? Producer liability in Germany assumes actual fault on the producer's part. However, manufacturers can be held liable for product defects even without actual fault. Product liability protects end users against certain risks arising from a defective product, even if these risks have only become apparent after the product has been placed on the market. There need not be any contractual relationships with the manufacturer.



Consumers suffering damage due to contaminated food, they are entitled to claim for damages (and, if applicable, compensation for pain and suffering) both under the German Product Liability Act and the producer's liability pursuant to Section 823 ff. of the German Civil Code. It does not matter whether consumers bought the product themselves. The manufacturer, unlike the retailer, is therefore liable not only vis-à-vis its contractual partner but everyone. Accordingly, the claimant may be anyone who has suffered damage due to a product defect.

Producer liability: Observe duty to ensure public safety

On one hand, the basis for liability is the producer's liability pursuant to Section 823 ff. of the German Civil Code. This states that a product manufacturer must take all objectively necessary and reasonable measures to prevent the products it places on the market from infringing the legal rights of third parties. The benchmark for these is what is known as the manufacturer's duty to ensure public safety. This refers to the duty of care requirements which the manufacturer must observe in the course of developing, manufacturing and distributing its products.

Typically, a distinction is made between four areas of responsibility:

- Responsibility for design
- Responsibility for production
- Responsibility for instruction
- Responsibility for product monitoring

In this respect, the manufacturer has a duty to avert danger. It must organise its business in such a way that it has full control of the product's cycle from design to proven performance in practice. A duty to ensure public safety always arises if a defective product creates a source of danger for consumers.

In the production of food, the particular focus in this respect is on the manufacturer's production obligation. The production process for food must be designed so that foreseeable sources of error can be identified and damage to the consumer by the product can be prevented. For this, the manufacturer must implement suitable and reasonable control measures and additionally introduce quality controls. It may ensure this, for example, by using suitable test equipment, such as an X-ray system or a metal detector.

What measures are reasonable for the manufacturer is determined largely by the user group and the risk posed by the product. Products which are intended for consumers who are not risk aware (such as infants) must exhibit the greatest possible safety. If there is a risk of significant danger to life and limb, then more extensive safeguards are reasonable than in the case of potential damage to property for example.

Producer liability: The manufacturer's fault is decisive

It is of key importance whether the manufacturer could have identified its duty to ensure public safety and acted accordingly and thus the damage would have been foreseeable and avoidable. It is initially presumed that the manufacturer is at fault which may result in unlimited liability. If, despite appropriate care, an unsafe product nevertheless gets into circulation, it is an outlier for which the manufacturer is not liable. For this, however, the manufacturer must actively demonstrate that it has taken all necessary and reasonable measures to prevent damage.

Liability according to the German Product Liability Act

In addition to the producer's liability, there is also the possibility of liability under the German Product Liability Act. This is based on EC Directive 85/374 EEC which is also effective in the other EU Member States. Here, the producer is liable for damage which is caused by a defect in the product (this also includes food). As in the producer's liability, the concept of defect is based on the lack of safety and reference is made to the duty to ensure public safety. However, fault on the part of the producer is irrelevant: if a product causes damage, the producer is liable for compensation of the damage – regardless of whether or not it has fulfilled its duty to ensure public safety. The liability target group is also interpreted more broadly to protect consumers. Not only is the manufacturer liable for damage, but also the parts manufacturer, the importer and the retailer if they affix their own mark to the goods or cannot name the manufacturer. The upper limit of liability is another special feature of the German Product Liability Act. In the case of personal injury, this is 85 million euros. ▲

Product and Producer Liability

Product liability

(Section 1 ff. German Product Liability Act):

- Liability without fault (strict liability)
- Defective product as trigger for liability
- Liability for "outliers"
- Protected group of people for everyone (personal injury) and for private consumers (damage to property)
- Maximum liability limit for personal injury is 85 million euros, the liability for damage to property is unlimited.
- Claims become time-barred after 3 years following acknowledgement, and expire 10 years after market placement

Producer liability

(Section 823 ff. of the German Civil Code):

- Liability with fault (liability in tort)
- Violation of or failure to observe the duty to ensure public safety as the trigger for liability
- No liability for "outliers"
- Protected group of persons: everyone
- Maximum liability: unlimited.
- Claims become time-barred after 3 years following acknowledgement, but no later than 10 years (damage to property) or 30 years (personal injury) after the damaging event

/ Regulations for Food Manufacturers in Europe

A number of legal provisions are designed to ensure that consumers in Europe are protected against health risks. Food manufacturers are subject to extensive inspection and quality assurance obligations. In this context, HACCP concepts represent important quality tools that have been designed specially for the production and handling of food. They are clearly structured and geared towards preventive measures.

Producer liability and product liability under the German Product Liability Act form a general liability framework for food manufacturers. In addition, in Europe there are many special legal provisions for handling food which are intended to ensure that consumers are protected against health hazards (due to contaminated food for example).

The General Food Law regulates several general principles in connection with manufacturing food at European level. The

focus here is on consumer health protection. In this case, the primary legal responsibility for ensuring food safety is assigned to the food producer. It must ensure that the food meets the requirements of food law and must check compliance with these requirements. In German law, the Basic Food Regulation is supplemented by the Food and Feed Code (LFGB Lebensmittelgesetzbuch) which also focuses on health protection.





It is essential for the implementation of a HACCP concept that employees are appropriately trained and that the measures to be taken can be integrated into routine working practices.

Inspection and quality assurance obligations

Regulation (EC) No 852/2004 lays down general requirements for hygiene in companies in the food sector. The obligation to introduce and implement a HACCP concept is a key element as is the ability to illustrate the self-monitoring measures carried out to the supervisory authorities if necessary. A HACCP concept is clearly structured and geared towards preventive measures. The German level, Regulation (EC) No 852/2004 is supplemented by the Food Hygiene Regulation (LMHV Lebensmittelhygiene-Verordnung) which particularly takes into account issues relating to the transport of food as well as dealing with small primary producers and the production of traditional foods.

The above-mentioned legal regulations give rise to inspection and quality assurance obligations which food manufacturers must comply with to guarantee consumer safety. It is possible to ensure that these inspection obligations are implemented by establishing, performing and maintaining procedures which are based on the HACCP principles.

In the context of manufacturer-specific production obligations, the inspection and quality assurance mechanisms must be designed so that they cover and document the entire production process. In concrete terms, this means that incoming raw materials must be inspected, including with regard to their quality, so as to exclude the presence of contamination, for example, and to check the type of packaging, hygiene or temperatures during transport. In addition, the food producer must name the raw materials and ingredients of the preceding

What is a HACCP Concept?

A HACCP concept (Hazard Analysis and Critical Control Point) is a quality tool that was designed for the production and handling of food. It analyses hazard areas and defines critical control points. These control points are then monitored by an efficient procedure to ensure compliance with previously determined limit values. If they are exceeded or not reached, predefined corrective measures will take effect. Beyond this, regular verification of the control procedure and documentation of the concept aim to guarantee the safety of the food.

Examples for documenting a HACCP concept:

Preparation

- Risk assessment (contamination of a food with foreign bodies, e.g. metal splinters in yoghurt)
Defective product as trigger for liability
- Critical points (for example, filling plant)
- Limit values (e.g. density of the filled food is typically between value A and value B)

Implementation

- Monitoring (scanner examines X-ray image and determines whether foreign bodies are present)
- Correction (machine ejects affected products so that they cannot be placed on the market)
- Verification (system is checked at regular intervals to prevent diagnostic errors)

stage (upstream suppliers) and the subsequent stage (buyers) by providing appropriate data. Although systems which enable batch-accurate traceability are not mandatory, they are sensible in view of any product recalls that may become necessary to limit the economic damage to the manufacturer.

In this respect, quality management plays an important part in the food sector. A comprehensive and efficient quality assurance system with appropriate documentation ensures consistently high quality of the food products and thus helps to prevent liability cases. ▲

/ Make Way for the D-Box

There are two commonalities that engineers fear and they always appear together: catchweighers that have to be set up on platforms in sorting centres and vibrations during operation due to moving masses. WIPOTEC's answer to this is the D-Box.



The Diagnostic Box
from WIPOTEC-OCS



The aim is to build platforms with as few supports as possible to keep the traffic routes free. This brings vibration problems into play which can be managed with AVC. The D-Box shows how well this works on site.

Jens Alder

Director Global Sales
Mail & Logistics

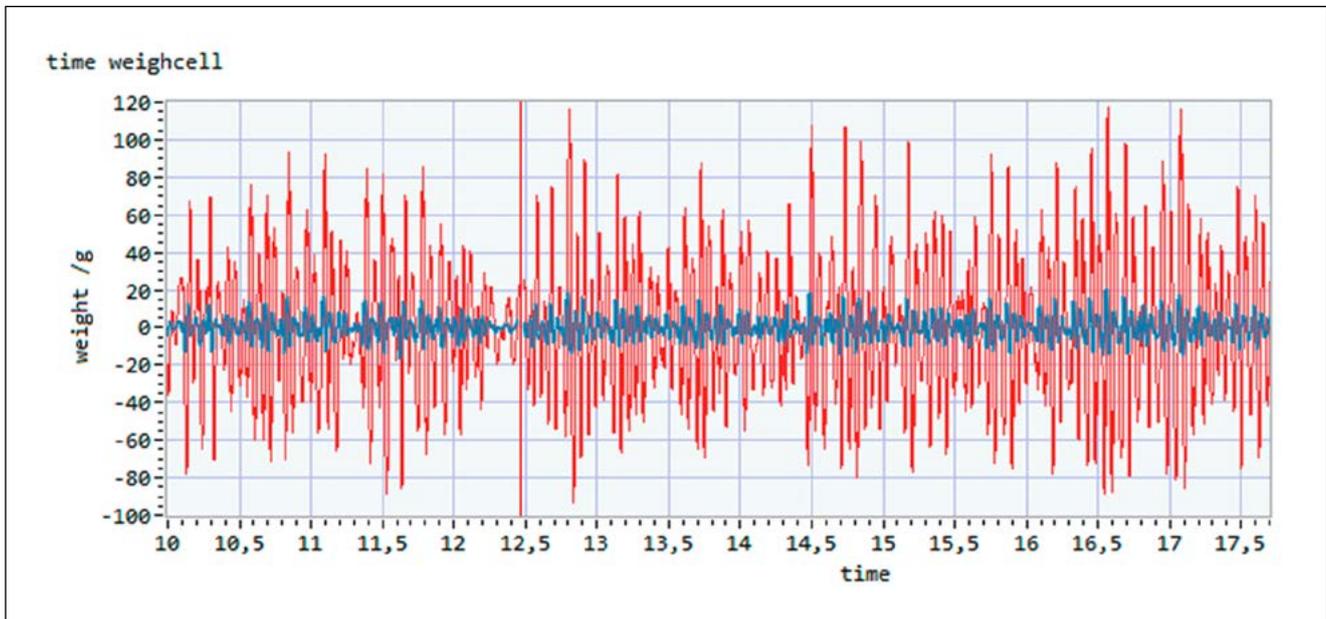
When catchweighers i.e. industrial scales have to be integrated into sorting systems, this usually involves a platform structure into which the catchweighers have to be installed. The platforms are designed in such a way that they require as few supports as possible in order to keep the transport paths below them free for transport vehicles. The absence of supports, however, makes the overall structure more susceptible to vibrations which accompany operations in a sorting system. These vibrations are caused by continuous conveying technology, sorters or vehicle traffic and make precise weight measurements difficult or impossible. In these cases, catchweighers do not yield the performance they might if they were standing on solid ground that does not vibrate. Avoiding this problem and achieving the best possible performance data would mean installing additional supports. The result: any savings disappear into thin air, transport routes can no longer be used as effectively, the steel structure becomes more expensive. This is where the Diagnostic Box, D-Box for short, from WIPOTEC comes into play; a mobile diagnostic system to precisely analyse the achievable weighing accuracy.

On-site diagnosis

The D-Box is a diagnostic device that simulates the behaviour of catchweighers in environments subject to vibrations. The diagnostic device is co-ordinated with the most up-to-date weighing technology currently available for catchweighers. The procedure is very simple and consists of a number of measurements performed with the D-Box during operation and at the catchweigher's installation site. As a result, the measurements show the maximum precision that can be expected from a catchweigher. The diagnosis can be matched specifically to the situation on site, taking into account the specifications required by the customer and the system's expected or predetermined performance parameters.

Vibration compensation with AVC

The D-Box, however, can do even more. Current catchweighers from WIPOTEC can be equipped with AVC technology (Active Vibration Compensation). Catchweighers which are equipped with AVC Weigh Cells deliver exact measured values even when exposed to severe vibrations. AVC sensors detect all kinds of vibrations and exclude them when calculating the weighing >>



Weighing results without (red)
and with AVC (blue)

signal. This makes AVC-compatible catchweighers especially suitable for use in parcel centres with high demands on speed, throughput and accuracy. Significant vibration of the platform structure is to be expected here due to a continuous operation of the sorters. These vibrations make it difficult or impossible to achieve small calibration values which are the requirement for revenue recovery even with weightwise light consignments. AVC compensates these vibrations and enables the achievement of smaller calibration values.

For the D-Box, this means that it can also be used to simulate the use of AVC technology. With the help of the D-Box, the customer can thus identify on site what improvement in the weighing results can be expected by using the active compensation technology of WIPOTEC-OCS. Since AVC attenuates the vibration amplitude by a factor of 10, the improvements are substantial and accordingly have a similar effect on the performance to be achieved. The decision for or against AVC is therefore based on reliable results.

D-Box provides immediate decision-making support

WIPOTEC specialists use the D-Box to carry out diagnosis on the spot. Based on the local conditions and specific application data, such as speed, parcel size and throughput rates, the software of the Diagnostic Box provides a precise evaluation within minutes. Using the knowledge gained in this way, it is possible to decide, for example, whether existing weighing technology

should be replaced or how weighing technology should be incorporated into an existing infrastructure. In addition, measurements performed with the D-Box during operation can be used to evaluate the extent to which weighing technology with AVC technology can further improve weighing results. Using this solution for active compensation of vibration means that the design of the platform structure can be less complex, as catchweighers equipped with AVC deliver precise results even when vibrations occur.

Practical experience with the D-Box

From diagnosis to simulation and practice: simulation of the AVC technology with the D-Box has already proven itself in flagship projects with market leaders in parcel shipment. In high-performance parcel centres with sorting rates of 50,000 parcels per hour, measurements in the existing environment highlight opportunities for optimisation, for example constructing platforms with fewer supports so that traffic routes remain free. This also includes forgoing planned stiffeners which makes the steel structure less heavy and saves on costs. In this way, the D-Box also supports standardisation in platform construction and minimises the risk that the specified values of catchweighers will not be achieved when handed over to the customer or when sorting systems are commissioned. So more and more often, we're hearing: make way for the Diagnostic Box! ▲

/ LEGAL INFORMATION

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