finish

INSIGHTS INTO THE WÖRWAG COMPANY

2018 | Cover 68 of 100

We are Wörwag

Celebrating 100 years of color

WÖRWAG

Farbe. Beschichtung. Kompetenz.

Andrea Tenyer
Accredited Test Lab Administrator

Sibylle Holzmann
Painted Films Team

Markus Herter
Coloristic & Launch Team

Yann Fischer
Global Pricing

Thomas Haug
Lab Operator

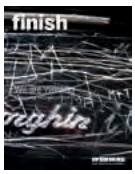
Abdelkader Zahzou
Shop Floor Operator, Filling Station

Adele Spranger
Coatings Laboratory Technician, Quality Inspection

Lei Gao
Production Supervisor

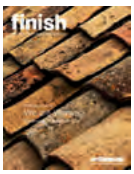
Fabian Frech
Shop Floor Operator, Premix Department

Dirk Langenbahn
Coatings Laboratory Technician, Quality Inspection



Jennifer Teidelt
Employee Suggestion System

Giuseppe Gaito
Powder Coating Production Supervisor



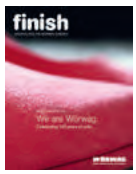
Dennis Riffel
Painted Films Team

Jürgen Mokosch
Project Manager Technology Basecoats

Kevin Kriebler
Process Engineering Developer

Sabine Bitzer
Technical Specialist Quality & Process Management

Lukas Mischkulnik
Coatings Laboratory Apprentice



Anita Verdonkschot
Human Resources Manager

Bettina Anders
Assistant to the CEO

Tanja Nebroj
Head of Apprenticeship

Karin Fesser
Accredited Test Lab Administrator

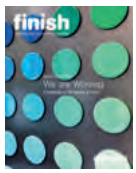
Andreas Bleck
Paint Tinter, Mixing Station

Evangelos Tsompanis
Shop Floor Operator, Premix Department

Aleksandra Sitev
Base Coat Developer

Georgios Alexandris
Shop Floor Operations Specialist, Grinding Room

Arijana Blunda
Head of Decorative Powder Coatings



Zoi Tzimulaku
Head of Production/Liquid Coatings Tinting

Giuseppe Dell'Orzo
Vice Craftsman, Premix Department

Dan Popescu
Shop Floor Operator, Grinding Room

Frank Sippel
Security Operator

Franco Colaciello
Shift Supervisor, Premix Department

Stefan Bänsch
Painted Films Team

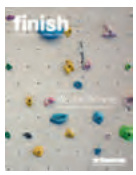
Meike Kiraly
Head of Clear Coat Laboratory

Gwendolyn Snyder
R&D Chemist, USA

Patric Schlufter
Shop Floor Operator, Grinding Room

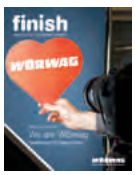
Denitsa Ivanova
Purchasing Manager

Carmen Scheuermann
Coatings Laboratory Technician, Quality Inspection



Klaus Fellmeth
Director Group Companies & IT

Sebastian Birmelin
IT System Administrator



Michele Di Paola
Shift Supervisor, Premix Department

Zhuo Wang
Industry Market Sales Manager, China

Zhen Wei
Assistant to the General Manager, China

Sergej Wiebe
Head of Powder Coating Production

Frank Müller
IT Support

Hans-Patrik Weller
Sales Administration, Legal Department

Agron Toplic
Shop Floor Operator, Premix Department

Johann Delerue
Sales Representative, France

Giuseppe Polito
International Project Manager

Michael Jäger
Director OEM

Dieter Übelacker
Head of Maintenance

Holger Sanders
Division Manager Base Coat Lab

Manuela Bäurle
Account Manager Transportation

Barbaros Adiyaman
Paint Tinter, Mixing Station

Robert Urban
Head of Human Resources

Gregor Hruby
Paint Tinter, Mixing Station

Daniele Pede, Frank Schenkel
Water-borne Top Coats

Uwe Tänzler
Head of Mixing Station

Fabian Weiss
Paint Tinter, Mixing Station

Pascal Zelfl
Base Coat Lab Service Administrator

Khalid Ali
Shop Floor Operator, Filling Station

Julia Klettner
Coatings Laboratory Apprentice

Daniela Renzo
Head of Corporate Communication

Helge Warta
Head of Painted Films

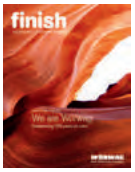
Detlef Krüger
Head of Process Management

Alexander Kiraly
Powder Coating Developer

Janosch Stickel
Technical Center Engineering

Daniel Knospe
Head of Technical Service

Daniel Seiler
Head of Business Unit Switzerland



Jörg Glocker
Director Sales Administration Legal Department

Silvia Hausherr
Business Unit Administrator Switzerland

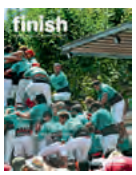
Dewi Paino
Director Business Unit International

Andreas Knoll
Paint Tinter, Mixing Station

Achim Gast
Chief Operating Officer (COO)

Udo Steinhauer
Director Marketing and Product Management

Horst Niederberger
Shift Supervisor, Vice Craftsman, Grinding Room



Jordi Doblas
Color Department Team, Spain

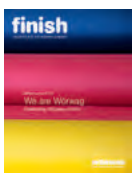
Terry Warta
Head of Painted Films Development

Montse López
Head of Sales, Spain

Daniel Mencel
Painted Films Team

Manfred Linder
Director Powder Coatings and Painted Films

Francesco Conforte
Warehouse Operator



Halimi Missoum
Shop Floor Operator, Premix Department

Mate Andabak
Shop Floor Operator, Premix Department

Zhongwen Yang
Team Leader for Incoming Inspectionsn

Sven Pechwitz
Head of Sales, Industry Business Unit

Inma Soriano
Customer Service, Spain

Susanne Baumann
Receptionist

Dirk Schulte
Maintenance Team

Benjamin Mühleck
Project Manager Digital Transformation

Thomas Seitz
Shop Floor Operator, Premix Department

Simon Mardinian
Shop Chairman

Nicole Mühlich
Head of Base Coat Laboratory Service

Roman Gimmini
Manager Regulatory Affairs

Gabriele Roth
Head of Accredited Test Lab

Hannes Wörwag
Chief Financial Officer (CFO)

Siegfried Hein
Developer Car Body and Truck Base Coats

Rainer Märkl
Shift Supervisor, Grinding Room

Jürgen Ortmeier
Director Liquid Coatings Technology

Stavros Tsaoussidis
Master Craftsman, Grinding Room, Cleaning

Fabian Reister
Product Developer, Top Coat

Editorial

WELCOME FUTURE

100 Years Wörwag

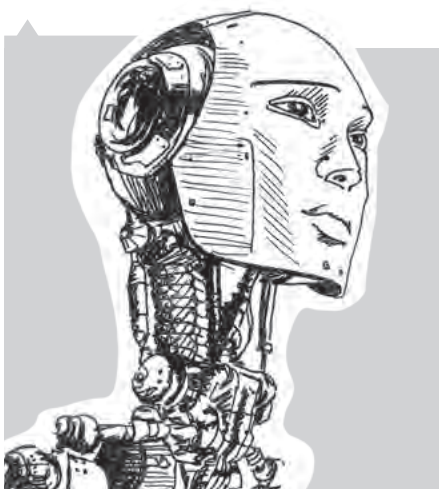
Dear Readers

Wörwag is a font of colorful ideas. And has been so for one hundred years. That is the age we have now reached. We're celebrating this anniversary, while continuing as always to look ahead. To mark the occasion, this special edition of **finish** is appearing with one hundred different covers, each of which has been designed by a different employee. And one hundred of our colleagues have also filled the next 100 pages with life. They represent the people who have made Wörwag the very special company that it is today.

We hope you really enjoy reading our special edition!

Daniela Renzo,
Head of Corporate Communication

We walk you through the magazine with the help of our anniversary color spectrum.



Imprint

Published by
Karl Wörwag Lack- und Farbenfabrik, Strohgäustrasse 28, 70435 Stuttgart, Germany.
Project Management, Editor-in-Chief
Daniela Renzo.
Concept, Production
campra GmbH, Hauptmannsreute 23, 70192 Stuttgart, www.campra.net.
Layout, Realization, Picture Desk
Rainer Czarnetzki, Juliane Herrmann.
Editing and Text Production
Jo Berlien, Jürgen Löhle, Thorsten Schönfeld, Michael Thiem.
Editor Torsten Waack.
Print raff media group gmbh.
Translation RWS Language Solutions.

We are Wörwag!

What could say more about a company and its culture than its employees? So **finish** set up a photo booth with a self-timer in the cafeteria in Zuffenhausen. Here are some images and quotes from our colleagues.

Photos by Florian Imberger

“This company gives me a sense of security.”

Ralf Henkelmann (Base Coat Pre-production) with Julia Rupp (Development)

“Wörwag is my life.”

Michele Di Paola (left) with Stefan Lechner (both Premix Department)

“We’re young, motivated, ambitious, and dynamic.”

Adele Spranger (right) with Armin Pudel, Marcel-Maurice Köstle, Carmen Scheuermann, Sabrina Saupp, Dirk Langenbahn, and Ismail Tozman (from left, all from Liquid Coatings Quality Control)

“What is the company about? The people, the employees, the work.”

Ralf Franz (left) with Denitsa Ivanova, Sebastian Scherer, Finja Gebel, Denis Alam (all from Purchasing), and Yann Fischer (Global Pricing)

“Wörwag made it possible for me to come back from Italy. It has been great – for 17 years now.”

Ciro Esposito (left) with Jürgen Zeides and Daniele Pede (all from Hydro Top Coats)

“We met on a company outing in 2003, and have been a couple ever since.”

Angela Tschierswitz (Department Head, Base Coats) with Alexander von Au (Lab Head, Interior Coatings), who have worked together at places like Lafayette in the USA (see the “American Beauty” issue of finish)

“The ski trip and the Cannstatter Wasen festival are a must. They’re fun. Really fun!”

Daniela Off (left, Production Manager, Base Coats) with Conny Nebel (Supply Chain Management), Silke Kohler (Shop Floor Management), and Helena Rössle (Production Management Assistant)

“I met my wife here 19 years ago.”

Uwe Tänzler (Head of Mixing Facility). His wife was a trainee at the time, and now works in the lab’s quality control department.

“Human relations are the key to success at Wörwag.”

Robert Urban (left, HR Manager) with Uwe Ortmann (HR Associate)

“There’s always a lot of action here, it’s never boring!”

Dirk Schulte (Maintenance)

“It’s great to be actively involved in the rapid development of paint films!”

Adnan Demir (right) with Manuel Wittke (both Paint Films)

“The people who work at Wörwag are totally dedicated!”

Chief Operating Officer Dr. Achim Gast with Bettina Anders (Assistant to Managing Directors)

“The great thing about this company is that even if things get stuck, we always find a way to get them flowing again.”

Fritz Vorlaufer (left) with Thomas Aichele (both Incoming Goods). They and their colleague Valeri Kovalev designed a pipe cleaning facility for incoming products.

“The working atmosphere is fantastic. We also indulge in the occasional practical joke.”

Franz Pieplak (Plant Painter) has been at the company for 35 years. When Germany won the FIFA World Cup in soccer in Italy in 1990, he and a few co-workers used a fork-lift truck to hang a German flag from the ceiling of the Premix Department during a break. “Most of our colleagues were Italian, and this caused something of a commotion when they returned from their meal,” he says with a smile.

“At Wörwag, the employees are not a bunch of numbers, but rather part of the family.”

Simon Mardinian (left) with fellow Works Council member Siegfried Christoffel

“I’ll never forget the field trips we took as apprentices!”

Susanne Ritz (left) with Nadine Weiß, Arijana Blunda, and Stefan Lutzei (all from Decorative Powder Coatings)

“It’s a pleasure to have been with the company for so long.”

Fred Wagner (right, Customer Service, Primers) with Manuel Seibold (Primer and Clear Coat Lab). Wagner has been with Wörwag since 1987.

“It’s fun to work here. And my colleagues, of course, are part of the reason for that!”

Hans Dusek (left) with Badru Zainu and Antonio Gaito (all from the powder coatings plant in Renningen)

For more photos, see:
www.woerwag.com/wearewoerwag

“I’m thankful that Wörwag has given me a career.”

Jalal Alami (center) came to the company as a temp in 2003. Today he is a shift manager in Coloration. Left: Mehmet Baltacı, right: Erwin Roth (all from Base Coats).

Wörwag's environment management has been validated accoring to

DIN EN ISO 14001

and

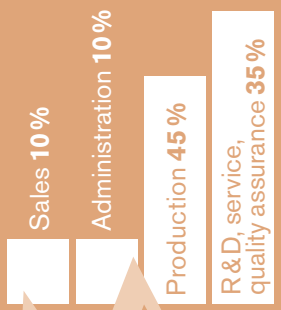
EMAS III

The **WÖRWAG WORKS COUNCIL** currently has

13 MEMBERS.

The chairman is Simon Mardinian.

APPROX. 1,000 EMPLOYEES WORLDWIDE



THREE CHIEF EXECUTIVES

Georg Saint-Denis | Dr. Achim Gast | Hannes Wörwag

Sales in excess of

200 MILLION EUROS

annually.

More than ***400 VISITORS*** come to the Zuffenhausen headquarters annually.

FOUNDED ON
MARCH 6, 1918

FOOD & BEVERAGES
in the company cafeteria per year:

30,000
main meals

2,000
single-serving jam packets

approx. 46,000
baked goods for breakfast

1,072 kg
Salad

1,331
cases of bottled water

106 EMPLOYEES

in Zuffenhausen participate in the **JOBBIKE INITIATIVE** and ride their bicycles to work.

The customer magazine **finish** was started in **2013**. Eight issues, including this anniversary edition and two specials, have been published since then.

2013 | 2014 *Special* | 2014 | 2015 | 2016 *Special* | 2016 | 2017 | 2018

COLOR OF CHAPTER **C**6**M**67**Y**100**K**18

We keep good things going and get new things started. Every tradition, after all, started off as a sensational innovation. And what are a hundred years when the future begins anew every day?

We are a family-run company. Down-to-earth. Taking responsibility. Balancing tradition and innovation since 1918. Growth helps us stay competitive while remaining true to our roots.

People are the key to our success. Everyone, from the CEO to each of the thousand employees worldwide, shares a passion for coatings. We're as colorful as the paints that leave our factories every day. We are Wörwag. Although only one of us officially bears the name, all of us carry it in our hearts.

Wörwag is Anders

Everyone has to pass by Bettina Anders. The 52-year-old is the assistant to Wörwag's managing directors Georg Saint-Denis and Dr. Achim Gast. She is the good-natured gatekeeper outside the chambers of power. But above all: she is an all-rounder. That's because Anders combines several jobs in one.

By Michael Thiem **Photos by** Rafael Krötz

Bettina Anders has a drawer in her desk that is especially popular with everyone. Chocolate bars, cookies, glasses cleaning cloths, and lozenges for "men's coughs" are stored in the mobile file cabinet. Her bosses can depend on her, and not just when they have a scratchy throat.

In 2001, the then managing director Jochen Schwemmle brought Anders into the team. She could provide a lot of insider knowledge, he thought – about conversations, strategies, plans and developments. She could. Yet this remains a mere hypothetical possibility for the trained business correspondent – and, with instinctive certainty, she confirms that it will stay this way. She has access to the managing directors' correspondence, takes the minutes at important meetings, knows when important decisions are pending, and is always up to date on strategic topics. She could say a lot. But she doesn't. And smiles so that her silence is not taken the wrong way. "When colleagues ask me for my opinion, I do give them an honest answer. If they don't like that, then they shouldn't ask me," she emphasizes, knowing full well that her evaluations are listened to. "Ms. Anders is a loyal confidant for me," says managing director Dr. Achim Gast by way of praise. "What has to stay in my office, stays in my office. For such confidence to develop in someone there has to be the right chemistry."

"I always say: smile when you are on the phone with a customer. I am totally convinced that this changes your tone of voice."

Anders is also a mind reader. Knowing which documents the managing directors might need in a meeting and having the right files at hand is something you can't really learn. Only experience helps here. And an instinct for the right moment. Addressing a sensitive topic or pressing someone to make a decision also requires psychological expertise. Anders also needs these skills in her role as the point of contact for everyone who would prefer to rush directly into the executive office. With her calm manner, she cools raised tempers down to a normal temperature. Even on the phone. "I am totally convinced that if you smile when you are on the phone your tone of voice changes. Remain calm. Then you can forward most inquiries to the specialist department or on to colleagues. Not everything needs to go straight to the boss," she says, revealing the secret of her diplomacy.

Equipped with political acumen, Anders is often away on special assignments. When someone has been in the company for so long, they have contacts in all departments and beyond hierarchical levels: Wörwag is Anders. "I notice a lot. Sometimes different things than the bosses do," she reports. She knows how important this kind of information can be. Routine and common sense help her navigate the numerous mishaps that arise during everyday office life.

Anders is something of a circus performer. At any rate, sometimes she seems to be doing a circus act. Coordinating appointments, managing time, setting priorities, while always being in a good mood. "I think I have my department under control. The art lies in keeping several balls in the air at the same time," she says. She rejects the usual secretary stereotypes: "making coffee, polishing your nails, tottering down the hallway in high heels – clichés like these annoy me no end." The vast majority of secretaries don't conform to this image. Nevertheless, she likes making coffee for her colleagues.

Anders is very perceptive and thus notices exactly what is occupying the bosses. "When you work so closely with someone, you get to know them quite well." The atmosphere is balanced, pleasant, not everything always has to be taken so seriously, apart from the things that do have to be. I have never witnessed Dr. Gast raising his voice. Even when a particular incident at the company is making him angry, he doesn't react emotionally." She is especially pleased to receive honest appreciation. "The boss gives praise. Sometimes that's exactly what you need."

Anders coordinates projects. In the role of sales assistant, she provides support to the automotive sales managers and the key account managers. Furthermore, her tasks include writing sales reports and preparing presentations. She organizes the extensive business travel that goes hand-in-hand with the internationalization of Wörwag. As the holder of the company credit card, she can book almost all flights and hotels for her colleagues directly or indirectly. The story of her once having reserved a rental car in Birmingham, Alabama instead of in Birmingham, England, is one of the anecdotes that she can heartily laugh about today.

Anders is part of Wörwag's history. The company has been a fixture in her life for the last 22 years. She has had some good fortune along the way. She almost missed her job interview by a whisker – the train company was on strike. Anders wanted to turn back, arrived too late, but left a good impression with the then sales manager Kurt Braun. "I didn't think for a moment that they would take me," she recalls.

Anders has a talent for languages. She speaks English and French fluently. Her love of the neighboring countries is also reflected in her choice of holidays. This year she is going to the ochre quarries in Provence. And Italy is always an attractive destination for her. Dolce Vita. Last year she visited Venice for the first time in years. She still raves about the famous sunsets today. However, she doesn't speak Italian as well as she would like to: "That is still an ongoing project. I once started a course but unfortunately it didn't fit in with my work hours well." Why does she love Italy so much? They know how to take a relaxed approach to life. I am often aware that I'm not so good at that." She plans her holidays right down to the last detail. And she has a plan B for all eventualities. "Even I get a bit annoyed about that sometimes," she laughs. "But that's just how I am."

Anders loves paintings by Gerhard Richter, and has treated herself to an annual subscription to the Kleines Haus at the Stuttgart State Theatre. She enjoys readings at Stuttgart's Literaturhaus cultural institution and her favorite color to paint with is purple: "I bought all the remaining stock of the Pelikan color 115, since it is no longer being produced." The only thing that constrains the diversity of her interests is her limited free time. To compensate for time spent sitting in the office, she regularly goes to the gym. "Strengthening my shoulders, so that others can lean on them," she muses, with her characteristic dry humor. And that's exactly what she means. Wörwag is indeed Anders.

The end of the in-tray

The classic mailing routes are also being used less and less at Wörwag. "I no longer dedicate much time to the in-tray," Bettina Anders says. There are still in-trays for internal mail distribution in her office. The same goes for the rarely used fax machine. The last typewriter on the premises – ready to become a museum exhibit. Today, almost all correspondence is done via email. On average, Anders sends about 50 messages a day. Presentation documents are no longer printed out and bound; instead they are displayed on screen. Modern times, fast times. Anders likes this. She just has one wish: "That people pay a bit more attention to spelling and etiquette in their written communications."

Secretaries to the managing directors through the years: Heide Class (above), in the 1970s at Wörwag, and Bettina Anders (left).

“I wasn’t familiar with Wörwag beforehand”

Wörwag started its anniversary year with a new CEO at the helm. After around a hundred days in the job, Georg Saint-Denis answered employees’ questions and, in doing so, formulated a vision for the company that created quite a wave of surprise and delight.

By Michael Thiem **Photos by** Florian Imberger

Georg Saint-Denis, 52, has been CEO of Wörwag since January 8, 2018. He brings with him more than 20 years of experience in an international working environment, in the automotive industry and as a managing director, among other positions. The 52-year-old from Bad Säckingen studied economics, is married, and has three children.

Saint-Denis: Where does your name come from?
Dell'Orzo: From Portuguese. And yours?
Saint-Denis: From France. That's why it's also pronounced in the French way. It comes from a Nikolas Saint-Denis, who was born in Paris and came to Mainz at the beginning of the 19th century. He fell in love there, and ended up staying.
Weiss: Does that mean that you speak perfect French?
Saint-Denis: Well, no, more school-level French really. I'm from Lörrach, and we would sometimes go shopping in Alsace or enjoy a skiing holiday in the Alps, but I wouldn't say that I speak it perfectly.
Kavanozis: While we're on the subject of names, when did you first hear the name Wörwag?
Saint-Denis: Do you want me to be honest? In fall 2017, when I was asked if I could imagine becoming CEO here. I wasn't familiar with Wörwag beforehand. But it quickly became clear to me that Wörwag was a hidden champion.
Kavanozis: Yes, I agree. When you tell people that you work for Wörwag, they usually just shrug their shoulders.
Dell'Orzo: We're the company in Zuffenhausen, right beside Porsche. People usually nod when you tell them that, at least.
Teidelt: What was the deciding factor in coming to Wörwag?
Saint-Denis: I was in a phase where I was asking myself what the next step in my career should be, so the offer came at the right time. I had been CEO of an automotive supplier for thirteen years, and suddenly I was faced with the question of whether I wanted a new challenge.
Teidelt: And Wörwag was able to convince you?
Saint-Denis: Yes, straight away. I liked the concept. Wörwag's profile is based on technology, quality, and innovation. Our production is based in Germany and we have highly qualified employees.
Kavanozis: You have now been in the job for around a hundred days. Has your first impression been confirmed so far?
Saint-Denis: Yes. It feels like I'm already fully involved in everything.
Kavanozis: How innovative is Wörwag?
Saint-Denis: We're pretty good already, but I do think that we could do more to improve our innovations, such as consistently getting our new ideas over the finishing line. We still have some potential to tap there. And that is why Sales and Development will answer directly to me in the future.
Dell'Orzo: What does that mean in practice?
Saint-Denis: We need to become more densely networked and need to communicate better across department boundaries. We have very good people in all individual departments, but we need to optimize our networking.
Teidelt: Where do you see Wörwag in ten years?
Saint-Denis: By then, Wörwag will be the most profitable company in the sector. This profitability will give us long-term stability. The stability, in turn, will allow us to keep investing and keep growing.
Dell'Orzo: Can Wörwag remain a family-run company if it does that?
Saint-Denis: Wörwag must remain a family-run company. After all, we want to remain independent. In ten years, we will have managed to turn Wörwag into a global company.
Weiss: What will that mean for the employees?
Saint-Denis: Our profitability will continue to allow us to include our employees in our success, better than our neighbor Porsche currently does.
Dell'Orzo: You do know what kind of special bonuses Porsche pays, don't you?
Saint-Denis: Yes, and it is my personal ambition that we will be able to do something like that at Wörwag too.
Kavanozis: What basic requirements do we need to put in place to achieve this?
Saint-Denis: We will have mastered the digital transformation by then. Working for us will become extremely exciting. We will be one of the most agile companies. Agile means that we have optimistic and loyal employees who have never lost their ability to change. And, because Wörwag is such an attractive employer, young, qualified people will be lining up to work for us.
Teidelt: Nice outlook.
Saint-Denis: Well, it's a vision.
Kavanozis: What products do we need to achieve this?
Saint-Denis: Paint is a product that, even in the future, will not go out of style. The visuals, touch and feel, and protective function it offers will remain important. We will, however, have even more functional paints and applications that we can't even imagine today. These

Jennifer Teidelt

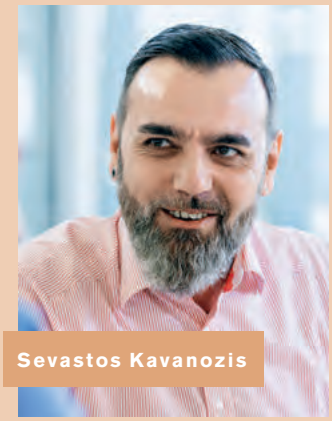
At Wörwag since 2012, responsible for the company's suggestion system.

Giuseppe Dell'Orzo

At Wörwag since 1996, works in production in the mixing shop.

Nadine Weiss

Completed an apprenticeship as a laboratory technician for lacquers in 2013. Has worked in color tone definition for powdered paints since 2016.



Sevastos Kavanozis

At Wörwag since 2002, department head for top coats.

could include conductive paints or coatings which will allow devices to be controlled. I am sure that our products will be in demand even outside of the automotive sector.

Teidelt: That sounds good.

Saint-Denis: It will be good!

Weiss: But, to put this into practice, you need qualified employees. Can we cultivate them ourselves?

Saint-Denis: Sure, why not? I have always had good experiences in doing so. One thing we certainly need to do is to boost our employees' motivation. Financial incentives alone, however, will not be enough to do that. We do, for instance, have some catching up to do when it comes to occupational health and safety and the working environment.

Dell'Orzo: I work in the mixing shop, the very heart of our production. We also jokingly call it Alcatraz or "Hell". When I started there 22 years ago, I wanted to leave straight away. But now I love Wörwag. Sometimes, however, I would like to get a bit more recognition.

Saint-Denis: And not without reason. It should go without saying that a supervisor gives his or her employee a pat on the back from time to time and says: "Good job!" But we also need to make sure that the tasks we give our employees are interesting. We are not – and nor will we become – a conglomerate, so it should be possible for every employee to know where his or her work fits into the company's overall success.

Weiss: I did my apprenticeship at Wörwag and I have been in color tone definition for two years. What directions can Wörwag help me to develop in?

Saint-Denis: We have to find a way to help every employee to work outside their own area. They could change departments, take on new responsibilities, look after entirely different products. Despite all of these sensible measures, however, we mustn't forget one thing: to concentrate on what's important. That means finishing what we have started. Doing so will present new opportunities for everyone involved.

Kavanozis: What exactly are you thinking of?

Saint-Denis: Lacquer foil technology is one example. It offers the potential that, in ten years, we could have twice as many employees at the Zuffenhausen location as we do now. We have been working on this development for the past ten years. Now we are getting ready to exit the start-up phase and really get going. We need to join forces to concentrate on the issues that we are convinced are important to the future of Wörwag. Lacquer foil or, as we call it, paint film is one such issue.

Teidelt: I have a question that concerns me as the person responsible for the suggestion system. What role do tools like this play in your plans?

Saint-Denis: Ideas management is the crux of the whole thing. If we want to be a leading technologies provider, we need to support and promote any and all ideas, even if they seem mundane at first glance. The hurdles to taking part in the company's internal suggestion system and the continuous improvement process must be as low as possible. Everyone needs to be able to participate.

Weiss: One other question, different topic: what do you like to do in your free time? How do you relax?

Saint-Denis: I like to spend time with my children and family. One hobby of mine is that I like to cook. I think I'm pretty good at it, too. Part of cooking is enjoying buying fresh ingredients. During the mushroom season, I frequently go mushroom-picking in the forest.

Dell'Ozzo: So we should soon expect more mushrooms in the company cafeteria?

Saint-Denis: It's definitely a possibility!

Photo gallery for the "Hello, CEO!" question session

www.woerwag.com/en/helloceo

A tradition since 1918

As a family-owned company, Wörwag combines tradition and innovation. The company has roots all over the world, but its home is in the Stuttgart district of Zuffenhausen. Milestones in a success story.

1918

On March 6, 1918, Karl Wörwag founded a company in Stuttgart-Zuffenhausen to develop and produce paint coatings and anti-rust coatings.

1925

Industrial production of industrial coatings begins.

1938

Wörwag develops stretchable coatings for the outer shell of airships.

50er

Air-drying coatings are developed for the agricultural and construction machinery industries, as are stoving varnishes for the household-appliance and lighting industries.

1969

Wörwag starts to manufacture powdered coatings with epoxy resin.

80er

Wörwag is in the vanguard of the development of high-quality coatings for plastic outer parts for vehicles. Metallic and plain basic coatings are also introduced.

90er

Industrial coatings containing solvents are gradually replaced with water-dilutable products.

from 1997

As part of its internationalization strategy, subsidiaries are founded in China (1997), the US (2000), South Africa (2003), and Spain (2010).

from 2000

Wörwag also offers paint films in addition to liquid and powder coatings. The company develops paintwork for the bodies of commercial vehicles and passenger cars.

2003

Wörwag is presented with the Environmental Leadership Award for the development of a hydro-topcoat for DaimlerChrysler's Sprinter model.

2007

Wörwag receives the Radtech Innovation Award from Radtech Europe for its dual-cure UV coating for external automobile applications.

2012

Wörwag receives the SPE Automotive Innovation Award Exterior for the water deflectors with paint films for the Mercedes Benz C-Class.

2016

Wörwag is presented with the 2016 Surface Award in Gold by the Fraunhofer Institute for Manufacturing Engineering and Automation IPA for its powder-in-powder coating on heavy components.

2017

Growth continues: Wörwag founds a new subsidiary in San Luis Potosí, Mexico.

2018

Wörwag celebrates its 100th anniversary.

More highlights from the Wörwag history

www.woerwag.com/en/history

Home game for Gast

Having a future-proof production set-up is close to Dr. Achim Gast's heart. The Chief Operating Officer is intensifying direct communication with employees in the wake of the expansion and modernization of the Wörwag headquarters.

By Thorsten Schönfeld **Photos by** Florian Imberger

Barely arrived at the office, Dr. Achim Gast buttons up his white lab coat. Then he holds the safety goggles up against the light, checks the visibility, and puts the goggles on. Wörwag's technical chief executive is a conscientious person. And he has his eye firmly on the future – the future that is gradually making itself felt at the Zuffenhausen headquarters. Numerous construction sites are evidence of the transition. Gast is currently pursuing more frequent dialog with the employees because the changes are being met with some skepticism by several of them. Today he is stopping by Uwe Tänzler's team at the mixing machine.

"I try to be in the production departments regularly," Gast confirms as he walks down the stairs of the administration building. He uses the hand rail. Not because the signs demand it, but because he wants to set an example in matters of safety. The 55-year-old is often on the road both at home and internationally. In 2017 alone he traveled abroad seven times, visiting the USA and China, among other places. In Germany he shuttles between Renningen, Korntal-Münchingen and Stuttgart. Being present everywhere comes at a price: his time. "A lot of employees would like to see me more often. But I have to balance my time between all of our locations." Here at headquarters he is on his home turf. Getting to the mixing machine involves crossing the courtyard.

The Tänzler team greets the boss with broad smiles. He shakes hands with each of the six colleagues. An all-male gathering. Not exactly representative, as women make up a quarter of the Wörwag workforce. The department puts together coatings for vehicle bodies and add-on parts according to customer specifications. So is it any surprise that the men promptly turn to the subject of cars? "When I walk across a parking lot, I inspect the vehicles' coatings and look to see if the product comes from us," says color specialist Andreas Bleck, who then asks: "Do you do that, too, Mr. Gast?" "Yes, absolutely," the COO says, smiling. "It's always nice to see that the effort we make here becomes visible on the car – in a great finish." This sentiment prompts a general nodding in agreement.

"And we have to take the people along with us on the path into the future."

The mixing machine department acts as a rapid-response crew. "We can produce a coating according to customer specifications within two hours," their head, Uwe Tänzler, explains. The paints are mixed in volumes of five to 500 kilograms. To achieve the desired shade, the machine adds tinting pastes to standardized base coatings. The order is stored in the system, the correct amounts of paste are dispensed fully automatically. Nevertheless, it doesn't work without some manual intervention. The perfect color still requires the color specialist's experience. The same applies to the next steps: adjusting the viscosity, stirring, doing a test application, issuing filling documentation, handing off to the filling facility, done.

Technology in the details: Dr. Achim Gast and Gregor Hruby in discussion at the mixing machine.

A department to Gast's taste, as it combines craftsmanship with state-of-the-art technology. This expertise produces solutions that only Wörwag can offer. "What distinguishes us is that we can make the impossible possible to a certain extent. It's important to preserve that. That's the reason we have to make certain the production is in good shape for the future here in Zuffenhausen as well. The key word is digitalization. We are just now creating the necessary space for that with building refurbishments."

Gast looks around the group. His word carries weight. Not only because he is the COO. He also has a doctorate in chemistry and two decades of experience in the development and sales of coatings. He knows how the competition thinks. And knows that they have to part ways with some traditions they have become attached to. "It's important to me to take the people along with us on the path into the future." Ultimately, it isn't about replacing personnel with artificial intelligence. In fact, it actually facilitates work and increases productivity.

Where colors come into play: Gast looks over Andreas Bleck's shoulder as he stirs Signal Red into the mix.

"Key figures show whether things are running well and where there might be room for improvement."

Gregor Hruby, also a color specialist, is standing next to Gast at the mixing machine. He agrees with his boss. "The online support is a great thing, alright. I only have to enter the order number, and the computer does the rest," he explains, pointing to the monitor and entering a series of numbers.

Scoring a goal: a round of foosball is next on the agenda before the end of the visit to the department.

Figures at a glance: Uwe Tänzler shows the COO the production numbers.

Gast likes to take considerable time with those figures himself. "From the key figures, we can determine how things are running in a department and where there might be room for improvement." Meanwhile, the COO and department head have walked over to the visualization board. Tänzler and team confer here every morning, measuring the actual status using the target status. "The shop floor management is ideally suited to quantifying work processes and to making sure all participants are on the same page," according to Tänzler. However, behind the board, things aren't all about leveling the playing field. It's where the colleagues find out who the foosball champion of the day is during their breaks. "How about it, Mr. Gast?"

100 FACTS **PEOPLE**

Nelson Mandela
(South African politician)
was born in Mvezo on July 18, **1918** and died in Johannesburg on December 5, 2013.

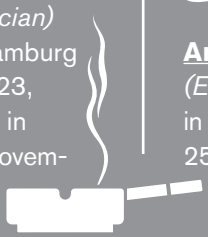
Leonard Bernstein
(American composer)
was born in Lawrence, MA on August 25, **1918** and died in New York on October 14, 1990.

John Forsythe
(American movie and television actor)
was born in Penns Grove, NJ on January 29, **1918** and died in Santa Ynez, CA on April 1, 2010.

Friedensreich Hundertwasser
(Austrian artist)
was born in Vienna on December 15, **1918** and died on board the Queen Elizabeth 2 off Brisbane on February 19, 2000.

Hans Scholl
(German anti-Nazi resistance figure) was born in Ingersheim an der Jagst on September 22, **1918** and died in Munich on February 22, 1943.

Helmut Schmidt
(German politician)
was born in Hamburg on December 23, **1918** and died in Hamburg on November 10, 2015.



محمد أنور السادات

Anwar al-Sadat
(Egyptian politician) was born in Mit Abu el-Kum on December 25, **1918** and died in Cairo on October 6, 1981.

Max Merkel
(Austrian soccer player and coach)
was born in Vienna on December 7, **1918** and died in Putzbrunn on November 28, 2006.

WÖRWAG ESTABLISHED ITS FIRST FOREIGN SUBSIDIARY IN

LANGFANG (CHINA)

IN

1997

UNSER HERZ
SCHLÄGT WELTWEIT

NUESTRO CORAZÓN
late en todo el mundo

OUR HEART
BEATS WORLDWIDE

我們的心跳
在世界各地

NASZE SERCE
BIJE NA CAŁYM ŚWIECIE

USA GERMANY

The sun never sets in Wörwag country.

MEXICO CHINA

Wörwag's approximately **1,000 EMPLOYEES** worldwide come from

38 COUNTRIES.

9,541 km

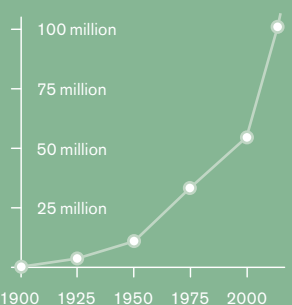
is how far

SAN LUIS POTOSÍ

is from Stuttgart. Wörwag founded its newest subsidiary there in 2017.

100,000 **color test panels** are coated around the globe per year. They measure 10 x 15 cm.

The global **automobile market's growth** from 1900 until 2018 based on prduction figure



We think beyond borders. Because we can. To open up new horizons, you have to explore outside the box. Everywhere there are new things to discover.

We speak 38 languages. At least. Because that's the number of countries our employees come from. We want to understand our customers, wherever they need us. Established throughout the world, we're at home in Zuffenhausen. We strike our own path. We enter new fields in a sustainable manner. That can be challenging on occasion, but it pays off. Pioneering work requires courage. And all manner of ideas. The result? Quality made by Wörwag.

LAFAYETTE (USA)

The dynamo

Canadian **Rob Duncan** plays goalie for the Michigan Sting Hawks senior men's ice hockey club. His quick reactions also come in handy for his job as Wörwag's Commercial Manager North America. He pays very close attention to customers. "To be or not to be OK – that's the only thing that counts," he says.

Founded: 2000
Worwag Coatings LLC
3420 Kossuth Street, Lafayette, IN 47905, USA
+1 765 4489681, info.us@worwag.com

DOSRIUS (SPAIN)

The expert

Montse López pulls many strings. As a sales expert at the Dosrius site in Spain, she meets customer requests, provides consulting, and listens very carefully to what will be needed in the future. Her aim is not just to sell coatings but also to provide complete service packages.

Founded: 2010
Karl Wörwag Lack- und Farbenfabrik GmbH & Co. KG
Carretera de Argentona a Dosrius, km 2, 08319 Dosrius
+34 935 4811 10, info.es@woerwag.com

SAN LUIS POTOSÍ (MEXICO)

The newcomer

As General Manager of Wörwag's newest subsidiary, **José Saldivia** leads a small multicultural team who have big plans in the Mexican city of San Luis Potosí. "I grew up close to the South Pole," says this native of Argentina. "So it feels great to be in Mexico, also because of the weather."

Founded: 2017
Wörwag Coatings México S.A. de C.V.
Eje 110 s/n Esquina Avenida Industrias, Colonia Parque Industrial, CP 78395, San Luis Potosí
+52 444 824 7717, info.mx@woerwag.com

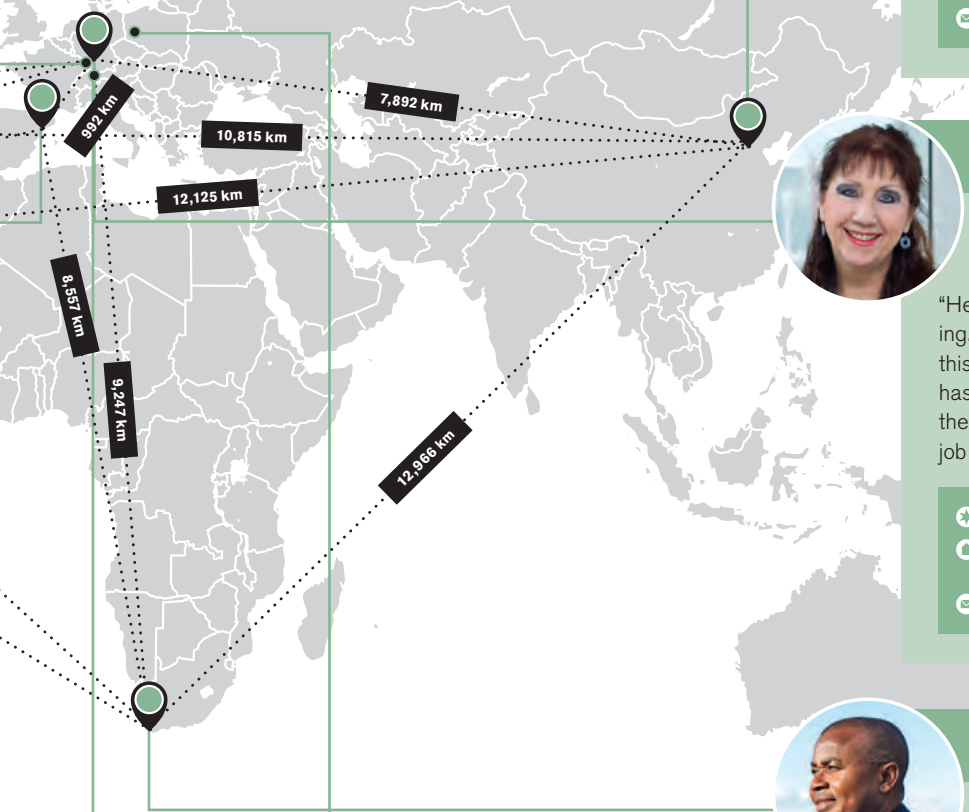
RENNINGEN (GERMANY)

Karl Wörwag Lack- und Farbenfabrik GmbH & Co. KG
Dornierstrasse 1, 71272 Renningen
+49 711 8296-0, info.de@woerwag.com

BADEN-DÄTTWIL (SWITZERLAND)

Wörwag Schweiz AG
Im Langacker 22, 5405 Baden-Dättwil
+41 56 4703440, info.ch@woerwag.com

.The Wörwag World



LANGFANG (CHINA)

The strategist

For **Kemin Chi**, German quality and Chinese service are key factors in the ability to achieve ambitious goals. He became General Manager at Langfang in October, 2017, and will soon also be responsible for Shenyang, where an additional production site will start up in 2018.

Founded: 1997
Worwag Coatings (Langfang) Co. Ltd
9 Quanxing Road, Langfang ETDZ, Hebei 065001, PR China
+86 316 5919502, info.cn@woerwag.com

ZUFFENHAUSEN (GERMANY)

The voice

"Hello, you've reached Wörwag, **Susanne Baumann** speaking." Baumann is not sure how often she answers the phone with this greeting, maybe 300 or more times a day. Since 2012 she has also been greeting customers and employees in person at the reception desk in Stuttgart-Zuffenhausen. She shares this job with three colleagues, who together are the voice of Wörwag.

Founded: 1918
Karl Wörwag Lack- und Farbenfabrik GmbH & Co. KG
Strohgäustraße 28, 70435 Stuttgart
+49 711 8296-0, info.de@woerwag.com

KAPSTADT (SOUTH AFRICA)

The fighter

Technical account manager **Henry Pienaar** is thankful for the opportunity offered by Wörwag. He grew up in a township in the South African city of Port Elizabeth, and made his way out thanks to having an iron will and a fighting spirit. He was one of the people who helped Wörwag launch its subsidiary in Cape Town in 2003.

Founded: 2003
Worwag Coatings South Africa (Pty) Ltd
13, Alternator Avenue, Montague Gardens 7441,
PO box: Chempet 7442, Cape Town, South Africa
info.sa@woerwag.com

SWIEBODZIN (POLAND)

Wörwag Polska Sp. z o.o.
Lubinicko 23 c, 66-200 Swiebodzin
+48 68 4585855, info.pl@woerwag.com

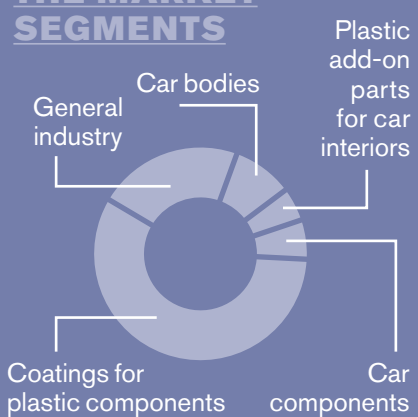
Sales Service Production Research and Development

Wörwag has been producing
WATER-BASED PAINTS AND COATINGS
around the world for more than
30 YEARS
and was a pioneer in the field, in China, too, for example.

Coating with the
PAINT FILM
means saving up to 80% of the energy required for spray painting.

Thanks to the
PAINT FILM TECHNOLOGY,
CO_2 emissions are reduced by more than 80 percent in the production process.

THE MARKET SEGMENTS



Plastic makes up to
20 %
of a car body.

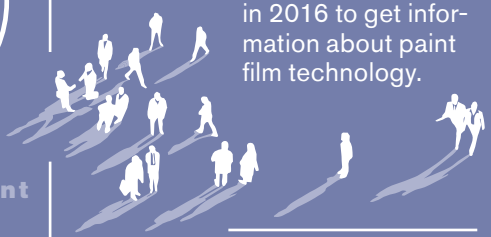
100
SOCCER FIELDS
can be covered every year with the area of paint film manufactured.

In 2016
Federal President Joachim Gauck
visited Wörwag at the Environment Week fair to learn about paint film.

61,440
ONE-LITER BUCKETS
were required in production last year.

THREE PRODUCT GROUPS

12,000
VISITORS
came to the Wörwag booth at the Environment Week in Berlin in 2016 to get information about paint film technology.



50 milliliters of coating are needed for applying the decorative strip on a **ROLLS-ROYCE** –

by hand, with coatings from Wörwag.

The **TOP 3**
parts most frequently coated with Wörwag products:


Park distance sensors

Brake disks


Bumpers

If you only do what you can, you'll always stay what you are. So we keep developing ourselves further, taking on the toughest challenges. We thrive on this.

Drawing on experience to produce good results is a proven approach, and our products meet the strictest international quality standards. But that's not enough for us. To remain avant-garde, we invest in our employees, machines, and processes. This yields exceptional products. And award-winning ones. Our environmentally friendly water-based coatings and paint films, for example, have received numerous distinctions – a sign of the responsibility we assume with such products.

An eye for process engineering: Peter Färber makes sure all the machinery runs smoothly.

Forward roll

Helge Warta and his team set the idea behind paint films into motion. Many individuals have contributed to its success – we asked seven of them to step in front of the camera.

By Thorsten Schönfeld **Photos by** Joel Micah Miller

Sometimes, apparently simple things turn out to be brilliant. The idea of "sticking instead of spraying", for example, has become a model of success over the past eleven years. "The technology is booming," says department head Helge Warta (50) in summarizing the situation with a certain amount of pride. After all, he and his team launched these films and their very special features.

The approach: revolutionary. The technology: 100 percent Wörwag. Paint on rolls. A process that saves resources and energy. Plastic parts with an even surface can now be made laminated in a single step. A separate painting process is no longer needed. The advantages over liquid application processes include no overspray and minimal drying times. Moreover, the films are weather and scratch-resistant. These properties are important to the automotive industry and window makers. Decorative paint films that disguise plastic window frames, for example, are made of a polypropylene substrate film, a base coat whose color can be freely chosen, and a protective clear coat. The UV clear coat cures instantly, is highly elastic, and can be embossed to show texture. In the automotive industry, paint films consist of a colored, thermo-active adhesive layer and a UV clear coat, and are used on roof trim and water deflectors.

The initial idea for paint on rolls came from Helge's wife Terry (39). In 2001 she wrote her undergraduate thesis on thermoformable clear coats for films. She and colleagues like Sibylle Holzmann, who is still

In his element: responsibility rests on Helge Warta's shoulders.

Decisive role: Petra Gerull handles the cutting process in Münchingen.

on the team today, brought the clear coats to series production in the plastics lab.

The process described in Warta's thesis triggered interest at the company. A five-member team studied the matter and began to build pilot facilities. The first films for coating car roof modules were produced in 2005 by pioneers including Manuel Wittke and Peter Färber. A plastics engineer, Wittke contributed thermoforming expertise and directed the coating facility on the factory grounds of the Decoma company. A chemical engineer, Färber took on the job of developing the complete array of Daimler paints. Today he directs not only base coat development but also process technology and is responsible for building and starting up all plant facilities.

"That was an exciting time," says Helge Warta. "We went at it in full start-up mode, and were positively euphoric." He and his colleagues played a special pioneering role not only in the new technology, but also in a number of other areas.

Wörwag gave the film fans all the freedom they needed. And the specialists put it to good work. In 2007 they founded the film engineering department with the aim of making new products on their own facilities in Zuffenhausen. They planned and built these facilities themselves, and introduced a four-shift system – which was also a first at Wörwag. Their team spirit played a very important role throughout. "The only way you can accomplish something like that is for everyone to pull together," says Warta. As head of the department, he believes

Leader in production: Manuel Wittke has a friendly ear for his colleagues not only when planning shifts.

In good hands: Stefan Bänsch watches over the products in Zuffenhausen.

that people should feel at home on the job. "We were one of the first departments to have our own fully automatic coffee machine," he says with a smile.

Warta puts everything he has into his job. This chemical engineer more or less grew up at Wörwag. His father headed a lab that developed façade paints – a unit that was discontinued some time ago. Warta Senior regularly took his son to the company. At the age of four, Warta Junior was given a miniature paint lab as a gift. "The die was essentially cast from that point on," he says today. While still in school he did some part-time work for Wörwag, completed an apprenticeship as a coatings technician, and decided to study chemistry. After working at other companies, he returned "home" in 2001. By the way, he was hired at the same time as his future wife – their personnel numbers differ by one digit.

Like all new technologies, paint films experienced growing pains. And the odd skeptic needed to be convinced. But that just brought the team closer together. New employees came on board and were welcomed with open arms. "Working on paint films is incredibly interesting," says base coat developer Heiko Veth, and he is hardly alone in this view. He was selected to represent the department at the photo-shooting session for this article, as was product manager Stefan Bänsch and machine operator Petra Gerull. They and the "old hands" are the seven individuals chosen to represent the breakthrough of an innovative technology.

Aiming high: Head of Development Terry Warta sends products off to successful careers.

Color touch: Heiko Veth brings base coats for paint films to fruition.

“Now we’re ready for the next step.”

Helge Warta

The department now has 27 employees. They produce films under very clean conditions on a three-shift timetable. Storage and cutting facilities are located about five kilometers (3 miles) away in Korntal-Münchingen. The annual product volume would easily cover 100 soccer fields. And the environmentally friendly star product keeps winning awards. In 2016 Wörwag was one of the “100 Companies for Resource Efficiency”, a project sponsored by the Environment Ministry of the State of Baden-Württemberg. That same year Wörwag’s presentation of paint films at the “Woche der Umwelt” environment trade fair in Berlin impressed many people, including then German Federal President Joachim Gauck.

“Now we’re ready for the next step,” says Warta. The team is preparing to market its current major products worldwide. It is also developing new applications like a new transfer base coat and highly conductive and self-adhesive films, to name just a few. Where all this leads will certainly be interesting. ■

Dr. Gissel, please take it from here

Alexander Gissel, responsible for the combinatorial laboratory, analytics, processing and materials technology, keeps in touch with research, and with his team he has been a driver of innovation at Wörwag for nearly 20 years.

By Jo Berlien **Illustration by** Jan Bazing

Innovation – that sounds modern. However, innovation in word and deed has already existed in Zuffenhausen for a hundred years, ever since what is now Stuttgart city center was still surrounded by fields and meadowlands. The word is derived from the late Latin innovatio. It started to be used in the late Middle Ages, first appearing in the Romance languages and then finding its way into English later on, and it carried the meaning renewal, improvement or change. The economists only coopted the term during the 20th century. Joseph Schumpeter understood it as establishing a technical or organizational innovation in the production process. The coatings experts at Wörwag look at it this way: innovation is when you make the best coatings and are still not happy with the achievement.

When an epochal change was due just before the turn of the millennium, the word at Wörwag was: Dr. Gissel, please take it from here – set up an analytics department for us! A specialist in organic chemistry, he was teaching environmental technology at Stuttgart University at the time. Nevertheless, he decided to choose Wörwag. "I had always wanted to work in a way that included diversity and practical applications, to see what I developed put to use and its effects."

The goal: to recognize what the customer needs in addition to coatings.

Today he is one of the most important innovation drivers and operates at the interface between research and application. The processing technology, materials technology and analytics departments as well as the combinatorial laboratory with a total of fifteen employees are all under his management. Gissel cooperates with scientific institutions, such as the Fraunhofer Institute for Production Technology and Automation (IPA) and the German Research Association for Surface Treatment (DFO). He also lectures and conducts training sessions for customers, suppliers and plant construction firms at their locations. The competition is tough. The first to recognize what the customer needs besides the best

coating has the advantage. The best process, for example. Wörwag participated in the industry-wide "Green Carbody Technologies" project funded by the Federal Ministry for Education and Research and studied how energy and materials can be conserved when coating body modules separately. Gissel: "That requires a different way of thinking."

When Dagistan Durdagi started working at Wörwag 22 years ago, he operated a device with a built-in paint spray gun: "We called it the weaving automat. You hung up the sheet, pressed one of the two buttons, and that was it." The gun could only move in two directions: up and down and from left to right. "Today you can set the application parameters very precisely. You learn a lot, and this knowledge can also be used in other departments," Durdagi explains. A pneumatic atomizing spray gun that disperses coatings liberally is outdated. Gissel: "Overspray is unacceptable nowadays." A high-speed rotational bell with electrostatics, on the other hand, applies the coatings with a substantially lower amount of overspray and therefore delivers a higher degree of transfer efficiency. The next step, which was to avoid overspray entirely, was already tackled in the Green Carbody Technologies project to apply sharply contoured decorative strips and stripes. Similar to a printer, this technology produces droplets and secretes them separately within defined coordinates instead of using atomization.

In the future, the plan is to coat larger areas, like car roofs in series production. If a roof is supposed to have a ▸

Coating any surface geometry perfectly.

Attractive: electrostatic coating of a plastic add-on part.

Photo: Rehau

different color now, it is masked and spray painted separately. Soon the coatings in these cases will also be able to be applied and cured in one pass. Gissel joins his team to work on such research projects. The team also puts their heads together when the subject at hand concerns the exact coating technology. "To develop such tools, customers and institutes need our feedback: lots of small assays to test hypotheses. Then we collaborate on that and provide material."

Johannes Brachs has been working in the department since 2011. The Head of Technikum already wrote his bachelor's thesis under Gissel's supervision. Today the chemical engineer coordinates the daily processes, works on coating programs and is the contact person for "depicting the coating surface in the Technikum".

Important insights around the issue of "fulfilling coating specifications on different plastic substrates" are supplied by Silvie Mohr and her team. Ultimately, it is the test that always ensures clarity. Innovation also means looking beyond your own industry, comparing, adapting. Liquid coatings consist of several components, including solvents, color pigments, binders. Finding the right mixture is time-consuming, especially as the demands on adhesion, color, effect and distribution are constantly increasing. The pharmaceutical industry first introduced high throughput technology, which allows a large number of mixture proportions to be created with small amounts of materials in a short time for testing purposes. The ideal components of a particular coatings recipe are found with the aid of statistical experiment design. Bosch developed and hand-built the prototype in collaboration with Wörwag, and began operations in Zuffenhausen in 2006. Michael Rosenow has been operating the equipment from day one: "No coating manufacturer ever had this before." The apparatus in the combinatorial laboratory mixes, coats, and dries. Rosenow: "The robot is lightning-quick in handling cups, scales, stirrers. The next process is already initiated when it is stirring the first order." The robot can manage 70 substrates with two coats each within 17 hours, i.e. a total of 140 formulations predefined by a bar code. In comparison: a lab technician requires up to one kilo of liquid paint per mixture and manages ten formulations in a day. What counts in regard to the coating results from the combinatorial laboratory is the surface quality and measurement data. "That allows us to calculate what is possible with which coating," says Rosenow. Sabine Ansorge can also draw on a wealth of experience in that regard. She co-created the process which represents the largest single investment in development. "We were the pioneers in this area for a long time," she reminisces. That should not be taken for granted, as automation's most formidable challenge is to be on the cutting edge and stay there at all times. A keen eye is required in the measurement technology department under Thomas Friedel's charge. The master of mechanical engineering measures cumbersome or curved parts, like complete car doors, by hand. Friedel is interested in the thickness of the coating, the distribution, the sparkle and the cloudiness in the shine. He lets the surface scanner take care of measuring the countless planar steel sheets and plastic panels. It works around the clock. If it comes to a standstill unexpectedly, a message appears on Ivana Matic's cell phone. She is the Group Leader for the surface scanner, the hub where all the various threads come together. Innovation never rests. ■

"Innovation also means looking beyond your own industry, comparing, adapting."

In charge of processing technology: Kevin Kriessler attends to the LabPainter, among other things.

Coating in motion – or: decoding our product names

Wörwag sells coatings for the automotive industry under the umbrella brand name of "Inmotiq." All its other industrial coatings are sold under the "Industriq" brand name.

1 The brand name is based on the application

In motion

Industry
(except automotive)

iq
from IQ

INMOTIQ | **INDUSTRIQ**

2 Product

Primer | **Base coat** | **Clear coat** | **Powder Coat**

more

3 Basis

WB
(water)

SB
(organic solvent)

4 Curing

1C | **2C** | **UV**

5 Type number

Type ID at Wörwag

6 Color code

Standard or user-specified

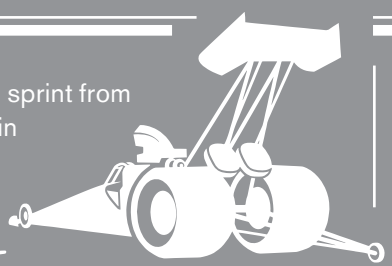
Example:
Wörwag Pearl White Hydro Primer 2C
has been relabeled since December 2017 as:

INMOTIQ Primer WB 2C R1472 Pearl White

1 2 3 4 5 6

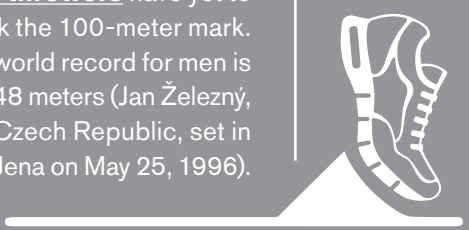
100 FACTS **RECORDS**

Dragsters can sprint from 0 to 100 km/h in 0.8 seconds.



Sharks can detect prey from even tiny traces of blood at a distance of 100 meters.

Javelin throwers have yet to break the 100-meter mark. The world record for men is 98.48 meters (Jan Železný, Czech Republic, set in Jena on May 25, 1996).



The women's **world record for the 100-meter** sprint is 10.49 seconds (Florence Griffith-Joyner, USA, set in Indianapolis in July 1988). The **men's record** is 9.58 seconds (Usain Bolt, Jamaica, set in Berlin in August 2009).

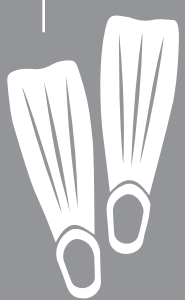
The highest number of points scored in an **NBA game** was 100, by Wilt Chamberlain in 1962.

The longest car ever built was a **Cadillac** measuring 100 feet, with 26 wheels, a swimming pool, whirlpool, and helicopter landing pad.

Temperatures exceeded 100° F for 153 days straight in Death Valley in 2001.

Cheetahs can reach speeds of 100 km/h or more when chasing their prey.

Ants can lift one hundred times their own weight.



In 1976 free diver **Jacques Mayol** (France) was the first person to descend 100 meters without breathing equipment.

In 1894 the **Manhattan Life Building** was the first skyscraper to break the 100-meter mark with a height of 106 meters.

Office furniture

Kitchen cabinets

Heavy equipment

All in

Calipers

The right product for every application – from primer to clear coating, from base coat to coatings with specialized functions. These examples show where Wörwag's strengths come into play.

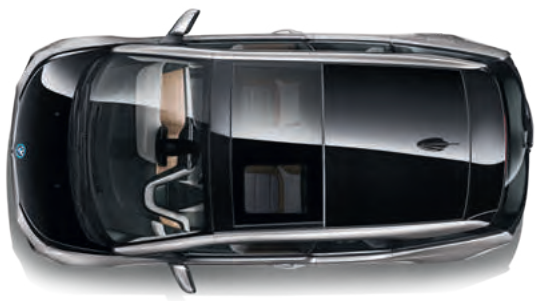
Utility vehicles

User panels on electrical appliances

Refrigerators

Razors

Shelf systems



Cars

Photos: Manufacturer

A field sales rep covers an average of

60,000

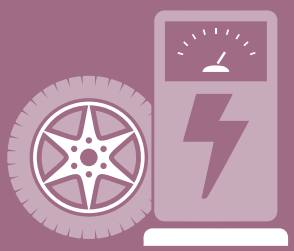
to

80,000

KILOMETERS
by car annually.

There are **12 SALES REPS** in total (D, Benelux, Czech Republic), two of them are women.

The Wörwag transport fleet has ***131 VEHICLES***, including several hybrid and electric models.



The longest distance to a customer by car:

Wörwag has

1,700 CUSTOMERS

(Status: 2017)

A total of **34 TECHNICIANS** are available to visit the customers on-site.

The account managers travel to see around **300** customers annually.

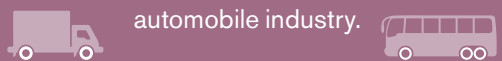
The most annual mileage a sales rep travels by car:

125,000 KILOMETERS

The companies Wörwag has had the oldest, decades-long **BUSINESS RELATIONSHIP** with:

- Blohm Jung GmbH (Hamburg)
- Heidelberger Druck (Wiesloch)
- Gleason-Pfauter Maschinenfabrik GmbH (Ludwigsburg)

More than **80 percent** of our customers come from the automobile industry.



The ***5 BIGGEST CUSTOMERS*** are:

- PLASTIC OMNIUM
- MAGNA
- DAIMLER
- REHAU
- SMP

We supply not only the specified amount of paint, but also one thousand experts. That's how many people work at Wörwag. With heart and soul. And that's why we do extras as standard.

If you're looking for commitment to primers and clear coats, just talk with the people who stand behind our products. We view ourselves as partners of our customers. We listen, we speak their languages, and we stand ready to assist in word and deed. And we're happy to do so in person at their paint shops. If needed, we'll travel halfway around the world to their sites. Our products, then, are all-round packages. Each can of paint contains the expertise of all our employees.

Obstruction

A blessing or a curse? A drive with Sven Pechwitz, Wörwag's head of sales for construction and agriculture machines, sheds entirely new light on freeway construction sites.

By Thorsten Schönfeld **Photos by** Toby Binder

Morning fog hangs over the fields and meadows like a gray-white veil. Occasionally a ray of sunlight penetrates the mist. Headlights of cars and trucks form a wavy line on the A 8 freeway between Stuttgart and Munich. Distances between the vehicles begin to shorten, and brake lights start flashing at ever more rapid intervals. Welcome to the morning commute!

Sven Pechwitz sits calmly in the middle of it all at the wheel of his black Audi. He is Wörwag's head of sales for construction and agricultural machines. We might call him the man for less delicate paint applications. At age 47, he has been with the company for 31 years – a real Wörwag veteran. After completing an apprenticeship as a coatings lab technician, he then trained in both technical management and technical operations. So he knows what he's talking about when he deals with customers. "Anti-corrosion properties are key when it comes to construction machines," he suddenly remarks in his Swabian-inflected German, while pointing to a road roller on the right-hand shoulder. Traffic is still moving, but paralysis is about to set in. The usual behavior is also evident as manic lane-changers seek momentary gain with no thought for anyone else.

Shaking his head, Pechwitz continues his train of thought. "You can imagine how tough the coatings have to be on that type of machine," he says. So powder coatings or combined powder and liquid products are used on milling, rolling, rock-crushing, paving machines, and similar technology. But the demands placed on coatings have risen in recent years. Pechwitz scratches his head. "Twenty years ago, customers didn't have their own coating specialists. Today, many of them have labs where they test what we as manufacturers produce. In addition to the anti-corrosion properties, they examine the visuals, gloss levels, and gradients. The requirements in our field are almost up there with the coatings for truck cabs!"

Wörwag places a premium not only on technical expertise but also, and especially, on individual consulting services. "That's one of our specialties as a medium-sized family-run company, which distinguishes us from the big corporations in the field," explains Pechwitz. In his position as head of sales, he is supported in Germany by four account managers, two market managers, and two technical customer managers. Traffic has meanwhile slowed down even more. The car right in front of us suddenly stops. The left lane isn't going anywhere either. So the traffic jam has now set in. "There's a construction site up ahead, and the road narrows," says Pechwitz. Construction sites as obstruction sites. A paradox really, considering that the point of road work is to improve traffic flow.

German drivers are sorely afflicted by this problem. According to the latest annual report from the German Automobile Association (ADAC), drivers spent a good 457,000 hours stuck in around 720,000 traffic jams in 2017. That adds up to about 52 years. If their vehicles were lined up in a row, they would form a column stretching nearly 1.45 million kilometers (0.9 million miles). But traffic jams exact a price, not only in time and patience. The German government calculates that they cause the economy to lose 250 million euros – a day!

Sven Pechwitz at a construction site with a Kleemann rock-crusher in Wörwag blue in the background.

A matter of perspective: at construction sites, Sven Pechwitz looks for machines coated with Wörwag products.

For transport and traffic expert Michael Schreckenberg from the University of Duisburg-Essen, the underlying reasons are obvious (see "We shouldn't adopt an adversarial attitude" to the right). "Aside from the fact that there are ever more cars on the roads in general, Germany is by far the major transit country in Europe," he notes. "From east to west, from north to south, all the routes use our freeways. Truck volume alone has been increasing every year by around two percent." Trucks not only fill the roads, but also inflict enormous damage on them. "We need to realize that a single truck wears down the road surface as much as 60,000 passenger cars," says the expert. And one of Germany's big problems is that it can hardly keep up with repairing all the damaged roads, which means it doesn't have the resources to do anywhere near the amount of urgently needed expansion work.

But as an important part of the European transport axis running from France to southeastern Europe through Germany and Austria, the A8 is at least being expanded. Right now, it usually has two lanes in each direction, which are being increased to three. In 2012, work began around the Merklingen exit in the Alb-Donau district, which Pechwitz is now approaching in stop-and-go traffic. Construction is taking place on segment number 4, which extends for 23 kilometers between Hohenstadt and Ulm. An estimated 3.5 million cubic meters of soil will be moved by 2021 in an effort to enable traffic to flow freely again. And 26 crossover structures – such as bridges, underpasses, and culverts – will also

Professor Michael Schreckenberg, transport and traffic expert at the University of Duisburg-Essen.

be built. Forecasts clearly show the urgent need for more lanes. The regional traffic authority in Tübingen expects that within two years, 85,000 vehicles will be using this segment of the freeway every 24 hours – a good 12,000 more than today. And if the construction site weren't gargantuan enough as it is, Deutsche Bahn (German Rail) is excavating the rocky ground of the Swabian Jura alongside the freeway for its new Ulm-Wendlingen line. Craters and enormous piles of earth are everywhere to be seen, and all the drivers and their passengers look out onto a beige-brown lunar landscape.

"I'm happy when I spot our customers' vehicles at construction sites."

Against this backdrop the various construction machines stick out like bright splotches of paint. Now at a standstill again, Pechwitz remarks, "Although many drivers are annoyed with the construction sites, I'm happy when I spot our customers' vehicles." These customers include two of the largest machinery makers in Germany. One is the Wirtgen Group headquartered in Windhagen in the state of Rhineland-Palatinate. Under its brand names of Wirtgen, Vögele, Hamm, Kleemann, and Bennighoven, the company provides a full range of road construction machines, which do crushing, screening, mixing, installing, compacting, milling, and recycling work (see "How to build a road" on page 58). Its machines are used around the world, and their white, green, orange, and blue paint jobs come primarily from Wörwag's powder-coating production facilities in Renningen, around 25 kilometers west of Stuttgart.

That is also where the characteristic yellow paint for Bomag is made. A specialist in compacting systems, Bomag is headquartered in the town of Boppard near Koblenz. It makes machines that compact soil, asphalt, and refuse, as well as stabilizers, recyclers, millers, and finishers. Wörwag has worked with both Wirtgen and Bomag for many years. Business unit five, to which Pechwitz's team belongs, is relatively small compared to other units, such as that for the automotive sector – but every bit as sophisticated. A special priority is placed on personal contacts. Pechwitz enjoys a warm welcome wherever he goes. That is due to his above-mentioned technical expertise, but also to his open and uncomplicated nature. "I'm not your typical head of sales," he says with a smile. "You won't catch me very often in a suit and tie, for example." He has been dealing with construction machines for more than twenty years. What is it about them that fascinates him? The fact that they do both heavy-duty and precision work. Many of them, for instance, have considerably more advanced autonomous driving functions than conventional passenger cars. "Today's paving machines, for example, analyze the earth by ultrasound and calculate exactly the amount of asphalt that needs to be applied for a perfect surface," he says. "Or road rollers. If you feed them the right coordinates they can compact a freeway without a driver."

A motorcycle weaves through the lines of cars, eliciting a few envious looks. When not at work, Pechwitz himself is a fan ▸

"We shouldn't adopt an adversarial attitude"

Dr. Schreckenberg, are construction sites the main reason for traffic jams on freeways?
No, construction sites and accidents only account for 40 percent of traffic jams. Most congestion is caused by too many vehicles or inappropriate driving styles. And traffic volumes are continuing to rise. We should be building a lot more roads. But the money isn't available. That being said, there's room for improvement at construction sites. Sometimes construction is done simultaneously on the main road and an alternative route, so you can't get around it. We need to improve our construction site management. I'm working on new strategies for this right now.

How should we change our driving behavior to prevent traffic jams?
Drivers have to be more cooperative. We could significantly increase throughput at construction sites if drivers didn't view everyone else as adversaries. The zipper principle hasn't worked for a while now. Connected autonomous cars could be helpful here in the future. We've calculated that just one percent of cars equipped with this technology would be sufficient to substantially improve throughput at bottlenecks.

When the GPS says to take a different route to avoid a traffic jam, should we do that?
No. Everyone else has a GPS too, so you'll just be stuck on the alternate route along with them. I also see a danger in the devices. They keep adjusting anticipated arrival times upwards, which stresses out drivers and raises risk levels.

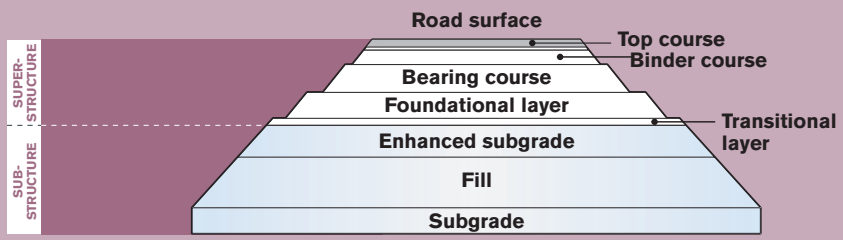
of two-wheelers. He restores old motor scooters. And rides them of course. However, he has resolved to cover the good eleven kilometers from his home in Pflugfelden to his office in Zuffenhausen by bicycle. That is healthier, he says, and is also a form of exercise. And talking of sports, this is something he encourages among his colleagues at work, too, by organizing the company's traditional soccer tournament and annual ski trip. "And we don't skimp on the après-ski part," he says with a wink.

His smartphone rings. "How's it going?" comes the voice of his colleague Matthias Knapp from the loudspeaker on the hands-free system. "It's not, at the moment," replies Pechwitz. "Stuck in traffic at the construction site?" "That's right, a typical Tuesday morning." According to ADAC statistics, Thursdays are the worst days for traffic jams, and Sundays the best. It's time for a break. When a yellow "M" appears on the right as the Audi slowly rolls toward the Merklingen exit, Pechwitz leaves the freeway. "McCafé has the best coffee," he says and leaves the traffic jam behind. Following a coffee and two cigarettes, he returns to the A 8. The traffic is still sluggish. But a short time later, it begins to flow. Then we hit the part of the freeway that has already been expanded to three lanes – and off we go! From the obstruction site to the sprint lane – the construction machines have done their job.

Pechwitz has worked with construction machines for twenty years.

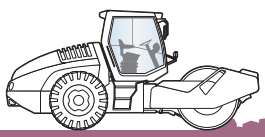
How to build a road

Roads are made of multiple layers to provide the most lasting resistance to extreme levels of traffic.



1. Compact the subgrade

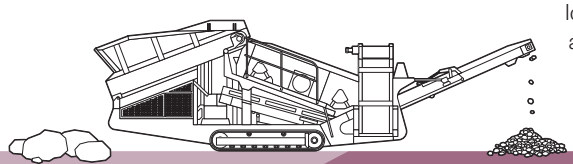
The earth first has to be compacted. **Heavy vibration or oscillation rollers** press air and water out of the soil. Binding agents like lime or cement give the subsoil long-term resistance to traffic loads, moisture, and frost.



If the ground is unusually damp, **spiked rollers** are used. The holes they make increase the surface area which in turn helps dry the soil out.

2. Install the bearing courses

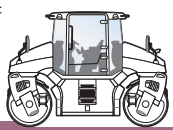
As the name suggests, these courses bear the upper part of the road. Two layers are usually involved. The lower foundational layer is made of loose mineral substances like gravel and sand, which are often produced on-site by mobile **rock-crushers**.



Paving machines then apply the asphalt bearing course (mixed bitumen-bound aggregate) onto the **foundational layer**.

3. Apply the surface

Paving machines are also used to install the top courses (binder course and road surface) onto the bearing course which are then immediately compacted by **tandem rollers**. Modern road rollers can apply asphalt at widths of up to 16 meters and process up to 1,600 tons of material an hour.



100 FACTS **SCIENCE**

Fermium has atomic number 100 in the periodic table of the elements.

Fermium
100
Fm
(257)

Water boils at a **temperature** of 100° Celsius.

100 billion cells are involved in our capacity to think. It's hard work: the brain accounts for only three percent of the body's weight but consumes 17 percent of its energy.

500 strains of bacteria can reside in our oral cavity, half of them on our tongue. That means 100 million microorganisms can be swimming in **1 milliliter of saliva**.

100 is the sum of the **first nine prime numbers** (2, 3, 5, 7, 11, 13, 17, 19, 23).

Lightning is visible at distances of up to 100 kilometers.

Winds can reach 100 miles an hour in a Category 2 hurricane.

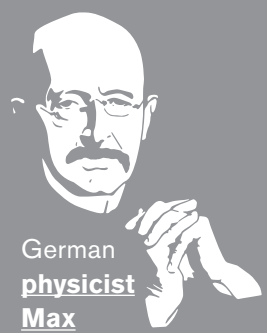
A 100-watt **lightbulb** burns for 750 hours.

Bangkok is located at a longitude of 100° east.

1001000110100110110010000010 011 111 000 110 101 011 001 100 100 001 100 011 001 011 010 001 000 110 101 110 011 1101111111100110000011010011

In a **base-two system** the number 100 is written as 1100100.

The Italian village of Acciaroli south of Naples has around 300 inhabitants over the **age of 100** (2016).



German **physicist Max Planck** received the Nobel Prize in Physics 100 years ago for discovering what is now known as Planck's constant.

A female **mosquito** has a lifespan of up to 100 days.

The **Roman numeral** for 100 is C.

Labyrinthine paths

What is a legal department needed for? Jörg Glocker and his legal team see to it that contracts Wörwag signs are legally correct and that there are no unpleasant surprises at the end.

By Jürgen Löhle **Photos by** Oliver Roggenbuck

The small print is easy to overlook. We all know that, but not many of us always live by the rule. Who actually reads through all the pages of terms and conditions for an insurance policy meticulously before signing it? The risks are manageable for a private person, but a different approach is needed in the world of business. Since 2015, Jörg Glocker and his crew ensure that the contracts are watertight and ideally never need to actually be consulted. Namely, when the business deal has been concluded without any problems.

Even if that represents the norm, the legal department is important to any company. Jörg Glocker explains why that is, using figures to illustrate his point. In 30 years of company history up to 2012, only 400 contracts were documented as having had individual pages that needed to undergo legal scrutiny and classification. This figure has increased sharply. In the past five years alone, the 49-year-old department head has counted 1,500 documents that have had to be checked rigorously for legal issues prior to being signed. "You used to be able to conclude contracts with a handshake," says Glocker, "but those days are definitely gone."

"There are solutions for everything. And hunting them down can be really fun."

The reason for the growing legal complexity is also due to Wörwag's business development. While the company once had a large number of – often small – customers from industry, the profile has clearly shifted towards the automotive sector. Many of these customers are large, international companies that frequently order several thousand tons of coatings every year. Two companies alone place orders with Wörwag amounting to 30 million euros annually. When the work assignments are that large, the contracts governing them are also complex. "Even the tiniest details have to be regulated for these customers," says Glocker, who sometimes sees major contracts encompassing 300 pages land on his desk.

Three-hundred pages – and there are pitfalls that are important to avoid in each one of them. In addition to the general code of business conduct, the collaboration is specified down to the last detail. At the same time, the conditions also have to be examined for feasibility. "If a customer has a problem that we have to react to within an hour, but the drive to get there alone takes four hours, that isn't possible, of course," Glocker cites as an example. In another case, the partner wanted 64 months warranty coverage on the coatings, which is significantly longer than usual.

Goal-oriented: Jörg Glocker stays on top of the legal labyrinth and cycles across the Alps to keep things in balance.

Eighty percent of the Director of Sales Administration's job is spent reviewing contracts. Some of them sport more commentary than paragraphs by the end of the checking process, while others pass muster without any comments at all. Wörwag has had a legal department since November 1, 2015. Glocker is the department head, and support is supplied by the fully qualified lawyer and corporate attorney Dr. Isabel Otterbach and by Charlotte Coy, who has a degree in business administration. Ever since then, all contracts go through the Legal Department to be scrutinized. Glocker: "We have to ensure that Wörwag only signs documents with stipulations that we can fulfil."

Glocker earned his qualification for this complex responsibility through a time-consuming process. The economics major (Diplom-Ökonom) took a distance-learning course for two-and-a-half years starting in 2012, and attained an LL.M. degree, Master of Laws, in commercial law for company applications. Those were tough years which required around 15 hours of study time per week – in addition to his job. "The company and I shared the time," says Glocker, who had one day a week off during his course of study.

Glocker draws his strength and energy for such endeavors through cycling, for example. It adds up to around 7,000 kilometers a year. Time to clear his head and recharge his batteries for work, which demands a great deal of concentration and stamina. And teamwork. The team also has the boss covered at times when he's off cycling. For example, in summer, when Glocker crosses the Alps on his mountain bike.

He also has to be ready to shoulder task force responsibilities at short notice. Quick responses are a requirement when legal questions come up. "There are solutions for everything," says Glocker. It necessitates finding compromises that ultimately lead to the business deal coming to fruition. Stress? "Hunting down a solution can be really fun," says Glocker. It's very similar to sports cycling. The challenges can also become enjoyable. Searching for the best solution can as well. "At any rate, nothing can faze me anymore." Says Jörg Glocker, the expert in small print, but also a whole lot more. ■

SALES

A day like no other

Here today, there tomorrow. Sales representatives are on the move a lot and for a long time – Wörwag believes that in sales, personal contact with the customer is important. Besides profound expert knowledge, this also requires an open style of communication, a good dose of flexibility. **finish** joined the reps on the road.

By Thorsten Schönfeld **Photos by** Petra Stockhausen

According to the workplace directive, a minimum size for a monitor-based workstation is eight square metres. That is especially tiny when compared to Lars Fischer's working space: His area of activity is well over 10 million times larger! It comprises North Rhine-Westphalia, Rhineland-Palatinate, Hessen and Saarland. Fischer is employed as a sales representative at Wörwag.

As one of twelve account managers in the sales department, he takes care of the large automotive customers, manufacturers and suppliers who purchase products from the company's wet and powder coatings and lacquer film segments. "Previously, customers were subdivided according to region. It incorporated many different industries. But then Wörwag reorganized the sales force and structured it according to business units," explains the 46-year-old. The distances grew accordingly. Yet the personal contact with customers is essential. New projects need to be planned, experiences discussed, and any problems solved as part of a joint effort. No matter how long the road ahead.

The job requires a high degree of flexibility. No day is like any other. Which in turn brings with it many freedoms. Sitting in the office for eight hours wouldn't be an option for any sales representative. "The diversity, the travelling and the largely self-sufficient work – that is what makes the job so special," says Fischer.

This requires technical expertise. The customer appointments are where you get down to the nitty-gritty. Fischer has been with the company for 17 years. The trained lacquer laboratory technician and business administrator has been working in sales since 2011. The account managers are supported by the technical customer management in Stuttgart. Colleagues also attend important appointments on-site.

09:00

What sounds like a normal start to the working day is an exception for Lars Fischer. Since today's journey is only from Wuppertal to Düsseldorf, Fischer can start relatively late. "Sometimes I have to leave as early as 4.30 a.m. depending on where I am going," he says. First appointment: Picking up Wörwag colleagues at Düsseldorf train station. The regular meeting in a large group then takes place at Daimler at 11.30 a.m.

09:02

Before Fischer sets off, he checks his diary to find out what else is lined up in addition to on-site appointments. As well as the Daimler meeting and a meet-up at vehicle component varnisher KSK, he needs to deal with the issues from other customers in the automotive supply sector such as Montaplast, Schröder, Wayand or Dura along the way.

09:08

As soon as he reaches the A46 freeway, the phone rings. Fischer uses the hands-free system of his company car to communicate with customers or colleagues at all times while driving.

Düsseldorf train station, call to colleagues: the train from Stuttgart is delayed by 15 minutes. He will not arrive until 10.45 a.m. Time for a coffee – and one or two phone calls.

09:50

10:45

The colleagues arrive. Fischer greets Eleonora Rösch, Key Account Manager, and the Head of the Top Coat Department, Sevastos Kavanozis. They discuss the most important points of today's agenda again on the way to the Daimler plant in Düsseldorf. Once on-site, they are also joined by Tobias Hummert, Area Manager Base Coats.

11:30

Meeting at Daimler: Wörwag supplies a range of base and top coats for the Sprinter van. Thomas Bajor, an application technician from Wörwag, provides on-site support to the varnishers to ensure that the application functions smoothly for the customer. During the regular meeting, coating experts from both companies exchange information about the products used and their processing.

13:15

That's all part of the job: on the freeway again, this time heading towards Geilenkirchen, Fischer is stuck in traffic, as is often the case. It hasn't got him flustered for a long time though. "I factor in buffer time for all trips so that heavy traffic doesn't mean I'm late for appointments," he says, and then rings a colleague.

14:25

Fortunately, the road was soon clear again. That leaves enough time before the next customer appointment to grab a snack at the bakery in the Geilenkirchen industrial park.

15:00

At KSK industrial coatings, the Technical Director of the company, Achim Derdak, talks through the current projects with Fischer. The medium-sized company coats automotive add-on parts. The Technical Customer Manager at Wörwag, Stephan Fuchs, would usually be present at the meeting. He has, however, been delayed today.

16:05

Shortly before the KSK meeting, the sales representative received an emergency call from Stuttgart: the wrong hobbock was delivered in Geilenkirchen. No problem! Fischer simply puts the 25-litre shipping container into the car and secures it safely. Since he has to go to the headquarters soon anyway, he will just take it with him.

16:15

Following his "rescue mission", the Wörwag Account Manager heads back to Wuppertal. On the way, Fischer tells his colleague Fuchs about how the meeting at KSK went, and what needs to be done when he gets back to the office.

17:45

Fischer arrives home. But he will have to wait a while longer before clocking off. Firstly, the two appointments need to be followed up, emails read and answered, and plans made for the following day. There is an appointment in Idar-Oberstein in Rhineland-Palatinate. That means a much earlier start than today. Yet, for Lars Fischer, the best thing about this job is that no day is like any other.

trucks loaded with goods arrive and leave the Zuffenhausen plant daily.

The *cyclical corrosion test* of coated color sheets in an artificial atmosphere in the lab can take 3 months.

The Wörwag production space in Zuffenhausen was expanded by

2,500
SQUARE METERS

in 2017.

Production and development use up to

1 MILLION
DISPOSABLE GLOVES

annually.

A new production record of **202 tons of powder coating** was set in calendar week 46, 2017.

Wörwag's powder on powder coating was honored with **"THE SURFACE"** 2016 award in gold by the Fraunhofer Institute for Production Technology and Automation.

Zuffenhausen personnel go to central storage in Korntal-Münchingen up to

10 TIMES A DAY.

Coated sample sheets spend up to

42 DAYS

in a 5% **salt fog atmosphere.**

Wörwag has submitted about 100 patent applications in the last 20 years, resulting in

15

PATENTS

to date.

The **MICROTOME CUTTING MACHINE** can cut 30 micrometer-fine shreds of plastic for examination under the microscope.

The humidity in an **accredited test lab** is 50%.

FLEXTIME	Core work hours: 8.45 a.m. – 2.00 p.m.
DAY SHIFT (production)	6.45 a.m. – 3.10 p.m.
EARLY SHIFT (production)	Zuffenhausen: 6.00 a.m. – 2.25 p.m. Renningen: 6.20 a.m. – 3.05 p.m.
LATE SHIFT (production)	Zuffenhausen: 14.10 p.m. – 21.40 p.m. Renningen: 3.00 p.m. – 10.50 p.m.
NIGHT SHIFT (production)	Zuffenhausen: 11.00 p.m. – 7.00 a.m. Renningen: 10.40 p.m. – 6.30 a.m.

The high-bay storage system in the Renningen powder coating production facility is

28 METERS HIGH.

It provides space for 3,100 pallets.

Making coatings is like baking cakes. The ingredients and the sequence have to be right. And a love of experimentation gives rise to new recipes.

Our development department and test labs get to the bottom of surfaces. We're not looking for problems as much as solutions. We're passionate about bringing efficient, environmentally friendly products and processes to series production. Like our water-based paints.

We often break new ground here. Because we like to tinker and experiment. We have our own detectives and lab experts. And many industrious assistants. The aim is for every color to hit the right note. For every single coating or paint.

PRODUCTION AND TECHNOLOGY

Time travel

Machines, work stations, and processes are always changing. They become faster, more modern, and more efficient. What did Wörwag's production processes look like 50 years ago? How are coatings produced today? A trip back in time reveals some charming comparisons.

Attractive protective coatings

Powder coatings have always been used for special purposes. In the 50s they were applied to engine components. Even today, customers still coat many parts of their construction machines by hand. Powder-on-powder coatings help preserve the environment because they eliminate the need for intermediate curing stages that are time-consuming and energy-intensive.

Logical storage

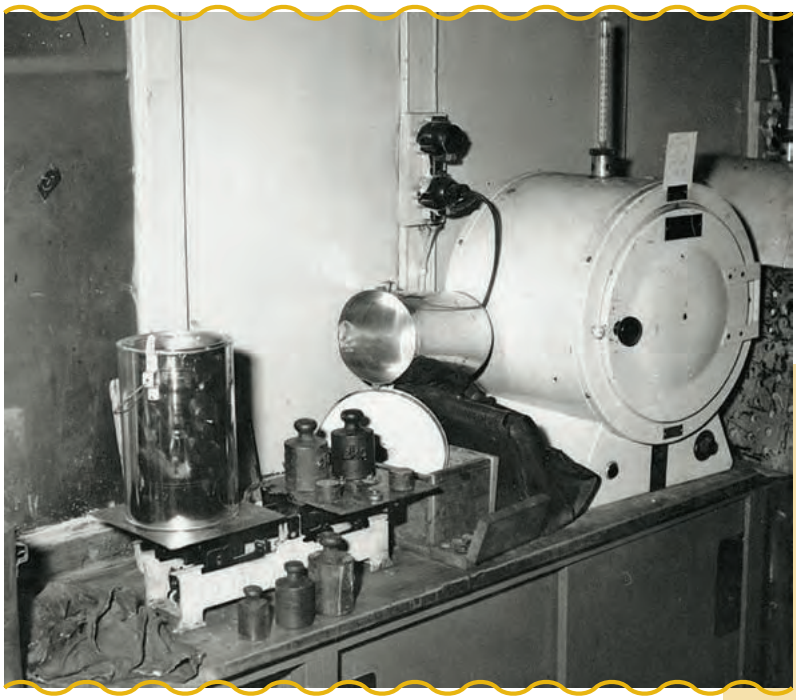
If you seek, you need to find. While that might not always have been the case at warehouses for raw materials and semi-finished products, today's storage systems are well thought-out and highly functional. Around 80 cans of color pastes are stored on these modern shelves and automatically stirred every four hours.

Small grains

Dispersal is the first material step in making semi-finished products and color pastes. Bead mills help to achieve the desired grain sizes. But today's machines no longer have belt drives. These high-performance systems provide impressive results that are directly transferrable to production.

Precise simulations

Coatings live. To test new products or batches, samples are coated. Components or color plates used to be coated at spray stations. Today, this job is supported by the LabPainter, which simulates the coating processes to be carried out under customers' production conditions. Wörwag has five of these systems.



Exact weights

For a long time, the measure of all things looked like a potato scale. It was used in the paint department to weigh binding agents or semi-finished products. Today, the individual ingredients are measured precisely down to a tenth of a gram.

Right direction

For liquid and powder coatings alike, tests are the only way to ensure quality. A certain level of dexterity is helpful here. Back in the 50s, quality assurance samples were coated by hand. Today's products are applied to test plates in a state-of-the-art spray booth. But here, too, the operator's hand is still an important tool.

Perfect products

No mistakes are allowed in the final step either. Finished products used to be poured into transport containers by hand. Today, the filling process is completely automated – and the operator only needs to affix the hazard label onto the drum.

Pitch perfect

Every pitch has to be perfect. Jürgen Ortmeier knows this from his music. As head of liquid coating technologies at Wörwag, he also knows that every new shade of paint has to be perfect. For more than 30 years he has played a crucial role in shaping both the company and many of its innovations. And his passion for playing the guitar is just the right accompaniment – because the hobby and the profession have a surprisingly high number of similarities.

By Michael Thiem **Photos by** Toby Binder

One last look. Then Jürgen Ortmeier (59) closes his eyes and tunes out his surroundings for a fraction of a second. He turns inward. And then gently plucks the strings. Finger style. The first tones. Chords to float on. Simply gorgeous. He has decided to play "Do kanns zaubere" by BAP, a Cologne-based rock band whose lyrics are written in the local dialect. Then he looks up. But his gaze remains serious. Or let's say concentrated. Anyone can learn how to play the guitar, but not everyone can develop his level of instinctual expertise. Not to mention passion. "When you make music, there's no room for other thoughts," he says, "because then you'll make mistakes." And mistakes drive Ortmeier crazy – whether in his music room or in the coatings lab at Wörwag.

Following this little taster of his music, Ortmeier puts the guitar aside. "Making music and developing paints are similar in a great many ways," he remarks. Such as perfection. In both cases, practice and experience are what count. After studying chemical engineering, Ortmeier joined Wörwag in 1984. Just three years later, he had become a leading member of the company's paint development team. "I had the opportunity to take responsibility early on," he recalls. In 1987, Wörwag developed environmentally friendly water-based primers to series production. In the early 1990s, an ever-greater number of plastic automotive add-on parts were being painted in the same color as car exteriors. Wörwag was one of the pioneers here, too, which led to contracts such as the paint for the Smart car. That was a milestone, and the coating system is still in use to this day. A new technology followed in the form of electrostatic coating. In fact, new challenges have never stopped emerging. "The company redefines itself at regular intervals, because there are always new demands, new technologies, and new general prevailing conditions," observes Ortmeier. And he's happy with that. After all, he has now spent more than half of his life with Wörwag. During this time, he has seen a family-run enterprise with 180 people grow into a worldwide family-run company with nearly 1,000 employees.

Persistence and countless evenings of practice are needed to play guitar pieces like Eric Clapton's "Wonderful Tonight" flawlessly. Ortmeier did not have much time for that in 2003. The lights at the labs, coating chambers, and offices in Zuffenhausen were on 24 hours a day, seven days a week, for three months straight. When clients converted to electrostatic application process for base coats, Wörwag's technology suddenly didn't work anymore. "The whole company was looking at us," recalls Ortmeier, who tackled this Herculean task with a 15-member team. New coating approaches, processes, assessments, and formulas were tried out in what seemed like an endless loop. Around the clock. The team's persistence paid off. Client approval came after three months. As Ortmeier sums it up, "We laid the foundation for a new generation of water-based coatings." Everyone had worked together, sacrificed their weekends, and shown incredible commitment. This incident is just one example of the Wörwag spirit. Of its family character.

Always in search of solutions, always presenting the best possible results – also for his wife, who likes to listen to him playing the guitar. And for customers. Wörwag offers them increasingly sophisticated overall packages on an ongoing basis. "Our customers don't just buy a can of paint from us, they buy new paint developments. We sell the applications. We show them how to paint. We help customers in their negotiations with carmakers. We're there to sort out any problems," says Ortmeier. If necessary, he might fly at a day's notice to the USA or to China. Personal contact is important to him.

Precision work: made to Ortmeier's specifications, this guitar is even signed.

Wörwag tries to do things better than other companies – that is the way it operates. "If we just did the same things as the big players, there wouldn't be a place for us," says this perfectionist, who then proceeds to show us one of his nine guitars. It was custom-made to meet his specifications. The top is made of hazel spruce, the back and ribs from Brazilian rosewood, 12 frets, B-Band and Freewheel tuners. The neck is signed "Jürgen." His eyes sparkle for a second. Then he lets the first chords dance.

Instinctual expertise resonates in every tone. Precision marks every move. Ortmeier began playing the guitar at the age of 13 – in order to impress a girl. Music has been his companion ever since. "My second life," he remarks. He retires to his music room every evening, and has watched virtually no TV for the past 30 years. On business trips he often takes a soundless guitar with headphones in his hand luggage, so he can play in his hotel room without disturbing other guests. He gives everything he has – to both his hobby and his profession. Sometimes he writes arrangements, records his music, adds to his YouTube channel or SoundCloud. Every year he contributes a song to a fingerstyle CD, and takes part in specialist forums. When he does things, he does them right. Which is why he still goes to the lab himself at Wörwag. Because burning topics bring out the chemist in him. "I also simply enjoy discussing different formulations," he says. Adhesion, flow, and consistency properties, additives, pigmentation, solvent adjustments, and so and so forth. There's an enormous toolbox at hand with a nearly endless number of possibilities. "The art itself and the expertise at Wörwag both consist of finding out which small adjustments will most effectively achieve our aim," he says. Being open to new ideas is not a bad quality in musicians. As for developers, natural curiosity is virtually a prerequisite for getting things done. And Ortmeier is someone who thinks way ahead. He is convinced that electromobility will change the ways in which cars are painted. Weight-reduced multi-substrate car bodies will keep presenting new challenges to paint developers. The processes themselves will change. Ortmeier is sure that ever more plastic components will be installed directly onto car bodies before being painted, which will require formerly separate coating processes to be harmonized. Up to now, steel car bodies have been dried at temperatures of around 140 degrees Celsius (284 degrees Fahrenheit), and plastic components at 80 or 90 degrees (176 to 194 degrees Fahrenheit). "We already have the technologies to combine these processes," he says. Digitalization will also advance at a rapid pace. Ortmeier is of the opinion that "we'll be able to describe our paints much better with facts, figures, and other data, and we'll need to share this knowledge with our customers for any given batch." This is because future paint application systems will get the information they need directly from customers or suppliers in order to coat the respective components perfectly. New innovations will appear, but perfection will remain a constant. Ortmeier's second big hobby is photography. Here, too, there are many similarities with both music and paints. But that is another story. ■

"When you make music, there's no room for other thoughts."

Listen to Jürgen Ortmeier:

YouTube
www.youtube.de/fingerstyler1de

Soundcloud
https://soundcloud.com/user-156209721

Homepage
www.fingerstyler.de

Relaxation and inspiration: Jürgen Ortmeier in his music room.

100 FACTS **CULTURE**

One Hundred Years of Solitude is a novel by Columbian author Gabriel García Márquez that paved the way for his 1982 Nobel Prize in Literature.

The book **I'm Off Then** by German comedian Hape Kerkeling stood at number one on the Spiegel and Focus magazines' best-seller lists for more than 100 weeks.

100 Men and a Girl (1937) is the only film with the number 100 in the title to have won an Oscar.

Of the **100 most common words** in the English language, only "person" and "because" have more than five letters.

Joseph Haydn's **Symphony no. 100** in G major was composed in 1794.

In Greek mythology the **giant Argus** is charged with guarding Io with his 100 eyes, which is the source of the expression "Argus-eyed."

The **"100 Club,"** a music venue in London, is named after its number in Oxford Street.

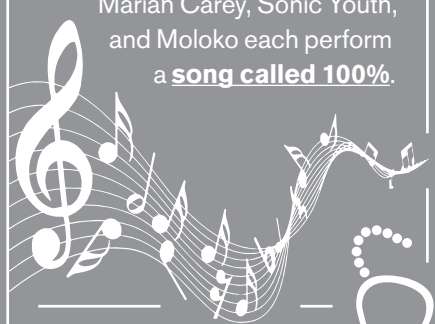
An English **Scrabble set** has 100 tiles. A German set has 102, of which two have no letters.

The first number-one hit on the Billboard Hot 100 chart in the US was Ricky Nelson's **Poor Little Fool** on August 4, 1958.

In Old Norse, the word **"hundrad"** – from which the word "hundred" is derived – means 120.

A **game show** entitled **100%** ran in the UK from 1997 to 2001.

Mariah Carey, Sonic Youth, and Moloko each perform a **song called 100%**.



According to the Bible, **Abraham** was 100 years old at the birth of his first son Isaac.

Chemical muesli

Powder coatings are more than just granulate that has been milled and sifted. The expertise that goes into making these products is clear upon visiting the Renningen plant, where Wörwag has been mixing, dispersing, extruding, and granulating since 1996.

By Jo Berlien **Photos by** Florian Imberger

Our visit to the plant begins in an unexpectedly simple way. The Renningen site does not have a reception. If you have an appointment, you ring the bell on the shift director's door. The powder-coating production facility does not get visitors very often. The people who run it wear white coats rather than white shirts. But they get up to rather colorful business, to judge by the product range. With 75 employees and three shifts a day, the plant currently produces up to 180 tons of powder coatings a week, or around 7,500 tons a year, in as many as 3,700 versions with different compositions, shades, and volumes.

The best place to view the action is from plant director Stefan Gerboth's office, which has large windows and is located in the middle of the production hall. Gerboth (51) looks out onto extruders, breakers, sifters, and 25-kilogram boxes containing the freshly ground powder products. His gaze sweeps out over the hall at regular intervals. Everything is running the way it should.

Gerboth, who comes from the Westphalian city of Hamm in the Ruhr Valley, first trained as a chemical technician and then studied process engineering at the Berg- und Hüttenschule Clausthal-Zellerfeld. He has specialized in powder coatings for a quarter of a century, and also spent many years working internationally with a major competitor in the same sector. One of his projects during that period was to modernize and expand a factory's infrastructure and machinery. In 2012 he assumed overall responsibility for powder-coating production for Wörwag. Gerboth loves these coatings. He would probably not put it that way, but his enthusiasm is evident in his voice.

One reason for this certainly has to do with their special properties. Powder coatings are tough customers. They can take all manner of punishment and still look great. They are resistant to impact, scratch, and abrasion. They don't fade in any weather, and are easy to work. This makes them well suited for asphalt shredders and other construction and agricultural machines. The blue seat backs on ICE trains and the red brake calipers on the Porsche 911 are also powder-coated.

Yet another advantage lies in the fact that they take relatively little time and energy to be applied. If powder-on-powder coatings are used, no curing is needed in between. Primer, top coat, and off to the oven – all in one step. Wörwag's powder coatings won the Surface award in gold from the Fraunhofer Institute for Manufacturing Engineering and Automation (IPA) in both 2012 and 2016. This all-round talent among coating systems is also a good choice for household applications. Joannis Miggos, who has worked in quality assurance at Wörwag for 34 years, has a powder-coated refrigerator in his kitchen. "I can tell everyone that I helped make it," he says with evident satisfaction.

But how are powder coatings made? Mills are needed. The Renningen site has ten of them. But mills alone are not enough.

Colorful view: Stefan Gerboth, head of powder-coating production, watches over the action from his office.

Wörwag produces vertically, i.e. from the top down in a four-story structure. Its 28-meter high-bay warehouse can hold 3,100 pallets. Unmanned forklifts convey the raw materials to level four, which is where the mixers are filled. The smallest has a volume of 30 kilograms, the largest a good three tons. There are also horizontal production facilities, but they require larger surface areas. Vertical designs save space.

But their one disadvantage is the drop height. The raw granulate plummets down the pipelines. If you put coarse and fine-grained materials into the funnel at random, says Head of Quality ▸

It's all in the mix: Jakob Bayer fills a mixer with granulate to launch the production process.

Small but smart: Sergej Wiebe with a special mixer for exclusive coatings.

Powder coatings are tough customers. They can take all manner of punishment and still look great.

Assurance Gabi Martini, the larger pieces will lie on top and the smaller pieces will trickle to the bottom – like what happens with muesli. So the ingredients are weighed not only to meet a formula, but also a specified sequence. Coarse material first, then fine, then coarse again to clean the pipeline. The mixer subsequently runs for six to twelve minutes, and a one-kilo sample is checked by the quality controllers. "The raw mix has to meet all the quality requirements," says Gerboth. "Because after extruding and milling there's very little you can change." If the controllers find any deviations, adjustments are made.

The chemical muesli consists primarily of polyester and epoxy resins, or a mixture thereof known as a hybrid. These binders form the paint film that holds all the solid particles, and also determine appearance, hardness, curing, and stability. They are joined by pigments, fillers, and additives of different granulate size and density. Black, white, and colored pigments produce the specific shade. Fillers ensure volume, support the mechanics, and make the product matt if desired. Additives influence the consistency, gloss, hardness, and UV resistance of the surface. Because powder coatings don't have solvents, no liquids are needed. The pigments, fillers, and additives are dispersed, which means distributed uniformly throughout the resin and thereby wetted, as explained by the chemical dictionary.

The next step is extrusion. In mechanical engineering, extrusion consists of pressing viscous substances such as thermoplastic materials through dies to produce molded forms. The extruder, or "hot meat grinder" as Gerboth puts it, melts the raw granulate mix at 135 to 145 degrees Celsius. The dough-like mass is dispersed, kneaded, and compressed by twin-screw rollers, cooled as part of a calender-rolling process, and broken up into hard, brittle chips.

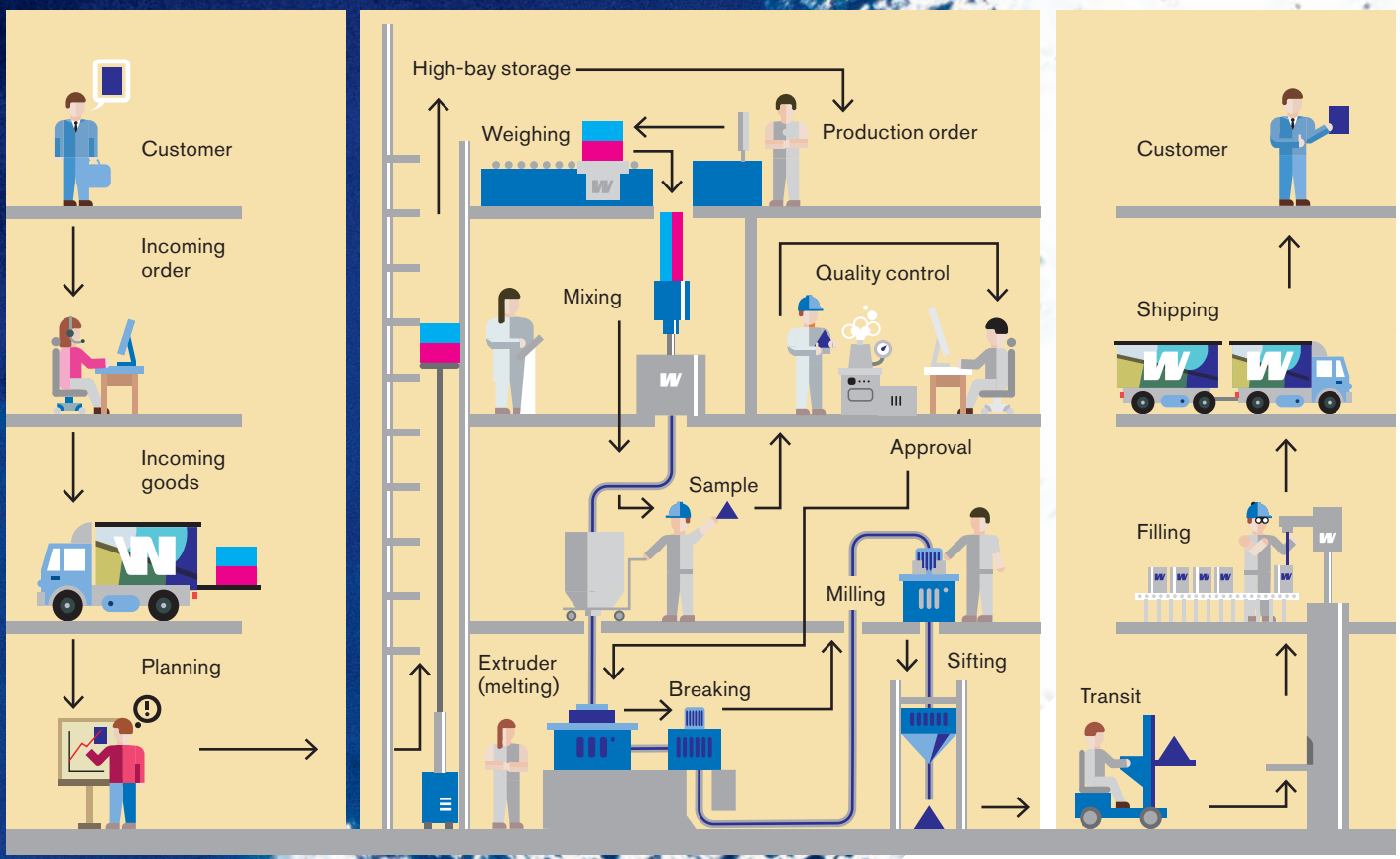
Then it's time for milling. A sifter in the mill separates the stock by particle size, density, or inertia. The speed of the rotary disk adjusts to the respective granulate sizes of chip batches. The mills can granulate fifteen to a thousand kilograms of stock per hour. A ventilator sucks the powder out of the mill through a cyclone separator onto a flat-bed screen whose 85 to 140-millimeter mesh catches coarse or flyover granulate and any non-milled stock before the powder flows into packaging for shipment and sales: 20 or 25-kilogram cartons, bulk bags that hold up to 700 kilograms, or steel containers that hold up to 350 kilograms, depending on what the customer orders.

Ignazio Senis, who gives final approval to the powder coatings, was recently in a furniture shop in Stuttgart where he bent down to inspect a designer piece by the Swiss company USM. Its glossy surface had also come from Wörwag – a powder coating from Renningen. When the sales clerk walked up, Senis simply commented, "Great work!" ■

In good form: the mixed granulate is extruded, rolled out, and broken up into chips.

Mission accomplished: quality controller Joannis Miggos uses color panels to compare the order and the result.

How do powder coatings get to the customer?



CSI: Münchingen

Something is wrong with the coating in a vehicle component. What happened? A case for the Wörwag test laboratory. Chief investigator Gabriele Roth and her team go looking for clues.

By Thorsten Schönfeld **Photos by** Florian Imberger

Monday, 8.00 a.m. Gabriele Roth rushes out of her office. She's holding a silver-gray plastic component in her hand. It looks a little like a propeller, but it's actually a piece of a radiator grille. The customer, a car manufacturer, has complained about the paintwork. The mission is to find out what caused this. The production lines are at the supplier who made the component. The hunt for clues begins.

Roth puts together the team of investigators. Nicole Mühlich and Pascal Zelfl will analyze the case and keep their boss up to speed. First step: sawing. In order to examine the corpus delicti with the high-tech equipment in the test laboratory, a manageable sample is required, around four by ten centimeters. "Pascal, you'll take care of this?" the head of the laboratory addresses Zelfl. He nods and heads straight down the long, white corridor. In December 2017 the certified test laboratory (ATL) moved from Zuffenhausen to the village of Korntal-Münchingen around five kilometers away. It had begun to feel too confined at the main production plant. The new home is attractive, with its bright, spacious offices and laboratory rooms. However, this is just a temporary address. From the window of her office, Roth looks out upon the new Wörwag plant being built across the street. It's to be ready at the end of summer 2019, when the test laboratory will make its permanent home there.

Corpus delicti: the silver-gray decorative element of a radiator grille is prepared for analysis.

The department is certified by the German Accreditation Body (DAkkS) according to standard DIN EN ISO/IEC 17025 for testing and calibrating laboratories. DAkkS has accredited the Wörwag lab for testing and evaluating the expertise, material and procedure based on customer specifications. And this is precisely what the current case is about. Zelfl has sawed the sample from the component and has made two cuts into it with a special tool that resembles a box cutter. The intersecting cuts

Investigators: Nicole Mühlich, Gabriele Roth, Pascal Zelfl

The investigators have a suspicion. The analysis will show whether it's correct. Precision work is needed.

Left image: Zelfl uses a special tool to cut the material sample prior to the pressurized water test (right).

are one millimeter deep. Now the actual investigation begins. The sample is documented with an ID number that is stored in the computer.

The eleven members of Roth's team subject the surfaces and layers of technical products to a wide range of mechanical, chemical and visual inspections in Münchingen – from the pressurized water test to the measurement of the resistance to salt spray, chemicals or hydrolysis, to microscopy. Along with complaints, the investigative team also looks at new paintwork before it is released to customers. A second team of seven processes internal orders from the development department.

Mühlich drops by: "Are we ready for the HPW?" "Yes." Zelfl gives her the prepared sample. The HPW is the high-pressure water test. "The abbreviation is actually incorrect because we don't use high pressure, only around 67 bar. But the name stuck," the coating lab technician explains. She did her training at Wörwag and has been with the company for 18 years.

Two doors away she enters room 1.02. The pressurized water test is performed here. There are three cabins to choose from. Mühlich opens the door of the first one and clamps the sample between two brackets. From the prescribed distance she aims the water jet at the middle of the test object. Close door, water on. The 60-degree jet of warm water hits one of the two cuts. "Let's see how the individual layers react." Mühlich has a suspicion but is keeping it to herself for now. Time for a review.

She runs into Roth and Zelfl in the corridor. The three of them put their heads together and assess the test result. The two others nod, seeming to agree with Mühlich's suspicion. "The microscopy will tell us for sure. Pascal, your job!" Roth delegates, giving Zelfl the sample. He sits himself down at the microscope, while the chief investigator enjoys a cigarette break. Roth was one of the founders of the test laboratory. The 64-year-old has been here for thirty years. Officially, the chemical and coating lab technician could have retired in 2017 after 45 years' service. "But my work is so much fun and my colleagues are so nice that I'm doing another two years." All test results end up on her desk. With her experience and her investigative instinct, even the smallest detail doesn't escape her.

Room 1.05, microscopy. The window blinds are down. Zelfl focuses the microscope. The slide holds a punched-out piece of the sample. The view through the microscope appears on the screen of the connected computer. "Yes, you can see it here." Zelfl, also a trained coatings lab technician, points to the monitor. "This should confirm our suspicion. We can see it most clearly in the cross-section." Using the microtome, a precision instrument for making the finest cuts, he planes a razor-thin sliver from the sample. He affixes this to a slide using crystal tape and puts it under the lens.

"There it is." Zelfl explains the layers that can be differentiated on the screen by their color tones and struc-

Precision work: for the microscopy, sample slivers 30 micrometers thick are affixed to a slide.

tures. He also determines their thickness. The bottom layer is the substrate, the coated material, in this case the plastic PP/EPDM. On top of this the coating sequence of primer (15 micrometers), base coat (22 micrometers) and clear coat (35 micrometers). "We can clearly see a delamination between the substrate and the primer," he states. In other words, the primer is peeling away from the workpiece.

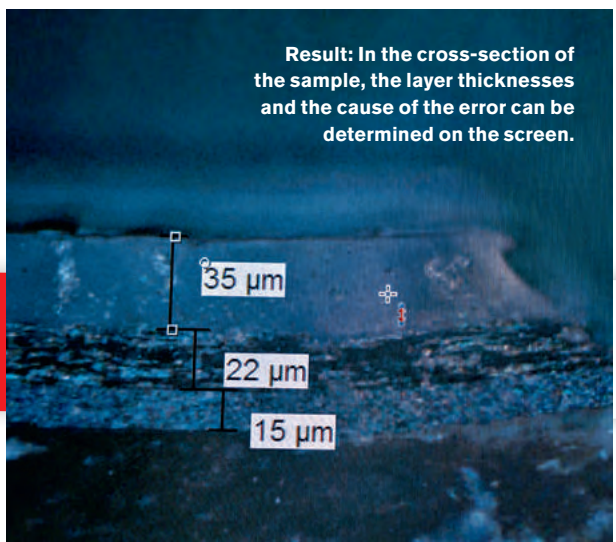
Why? Zelfl takes a closer look at the surface of the substrate. "Classic pretreatment error. For the primer to adhere optimally to PP/EPDM, it is treated with a

The examination of the surface confirms the suspicion.

gas flame before being coated. And multiple parameters must be complied with." The flame treatment causes oxygen radicals to be deposited on the surface, changing its polarity and enabling the coating to adhere better. "If the flaming is done at the wrong temperature, too quickly, or with an incorrect mixture, the adhesion does not work." Conclusion: the supplier must check its processes.

Zelfl documents his findings and saves the microscope images under the ID number of the sample. Before the test report, including photographic evidence, is sent to the customer as a PDF file, Roth has to approve it. In her office she has Zelfl tell her how he conducted the analysis and the conclusions he has drawn. "Just as we suspected," she smiles. "Good work!" Case closed.

Magnification: Roth's team looks at the paintwork as seen through the microscope.



Result: In the cross-section of the sample, the layer thicknesses and the cause of the error can be determined on the screen.

Wörwag issues

54,000

invoices annually.

500 CAKE MIXES

were given to the employees at the 2017 christmas party – as a warm-up to the anniversary year.

39 EMPLOYEES

participated in the 2017 trip to the Planai ski area in Austria.

Around

3,600 candies

kept in a glass jar in the reception area are polished off by visitors and employees alike every year.

Purchasing issues more than

9,000

orders per year.

168 APPRENTICES

have been trained at Wörwag since 1986.

OLD TYPEWRITER

is on hand at Wörwag for the rare case that a form needs to be filled out.

25.37%

of Wörwag's employees are women.

LARGEST DEPARTMENT

Liquid coating production/Premix department (39 employees)

The Wörwag apprentice **ANJA TRAPP** was awarded the "Top Chemistry Intern" prize in 2013.

SMALLEST DEPARTMENT

Head of Corporate Communication (Daniela Renzo)

Marketing / Product management (Udo Steinhauer)

40

new office chairs

were purchased in 2017.

The video portrait **"ONE OF US"** that shows employees in a completely different light was presented with renowned BCM award.

1 FILLED MAIL BASKET

leaves the Wörwag plant every day.

3 BASKETS are needed for the incoming mail.

The document with the highest page count (Wörwag Mexico foundation charter) from the Legal Department contains

172 PAGES.

5 employees are celebrating their

25-

year anniversary at Wörwag in 2018.

COLOR OF CHAPTER **C**100**M**0**Y**30**K**2

Culture comes from embracing values. Although not a family, we're a family-run company. Corporate culture cannot be ordered from on high. It arises from the employees. At Wörwag that's a matter of the heart.

If you want a sense of our company's culture, just visit our cafeteria. That's where our colleagues enjoy meals, play cards, and tell stories about the weekend. A team spirit is evident to all. For the company as a whole or for its many vibrant units. Whenever necessary, everyone pulls together. Wörwag embraces values like respect and fairness. We celebrate our anniversaries. Company outings, ski trips, and soccer tournaments are set dates on our calendar – not least of all because managing director Hannes Wörwag mans the barbecue!

Shining lig

If darkness ever descends on Wörwag's apprentices, that can only mean they're enjoying a special team event arranged by the training department. A round of black-light miniature golf shows that these young people get along superbly, even in the dark.

By Thorsten Schönfeld **Photos by** Toby Binder

hts

Kathrin Wickardt takes aim at hole 7. She steadies the fluorescent green ball, cocks her club, and connects with a little too much force. The ball flies over the hole. She tries again, with less power. The ball rolls over two hills and comes to a stop shortly before the hole. A gentle tap, and it drops in. "Three!" she calls out and enters the number on her chart. Her black T-shirt sports a big red luminous "T." This 29-year-old will soon be taking her final exam as a coatings lab technical assistant. The Wörwag apprentices are playing miniature golf tonight. Miniature golf in black light, to be precise.

Upon entering the golf hall a short walk from Wörwag's main factory, you'll first have to grope your way forward in the dark – literally. The 18 holes look like

"The program offers all sorts of great things!"

Kathrin Wickardt,
coatings lab assistant

Wörwag apprentices make a colorful statement.

islands of shining light. Their contours are marked with fluorescent paint, which has also been used to turn the entire hall into a shimmering underwater world with fish, crustaceans, and all manner of aquatic plants on the walls. A 3D effect is added by the colorful glasses handed out at the reception desk. Measuring around 600 square meters (6,458 square feet), this miniature golf facility opened its doors around a year ago. The adjacent room is for pit-pat, a version of miniature golf played on billiard tables, also in black light. Not just the visuals but also the bass beat emanating from the loudspeakers in the ceiling have turned the hall into a party zone. The apprentices are enjoying themselves.

Fifteen of the company's 26 apprentices are here today. It was hard to find a date that would accommodate all of their schedules. The first-year group is sitting in a classroom at the trade school right now. But they will be able to go on the next team outing. Wörwag attaches importance to events like this. In addition to being fun, they promote a sense of team spirit. Teamwork is not just a buzzword at the company, but is actively embraced. A glance into the golf hall is enough to see that future coatings lab technicians are engaging with future chemical technicians and production assistants. There's no sign of detachment or reserve.

In addition to technical skills, training director Tanja Nebroj (48) also emphasizes qualities like conscientiousness, independence, interest, and enthusiasm. "And it's very important that they get along well with each other," she says. She herself trained as a chemistry lab technician and has been with Wörwag for 16 years now. Good working relations are schooled from the start.

Apprenticeship programs begin with an introductory week. "During these five days the newcomers get to know the company and their individual work stations," says Nebroj. "And we spend one full day climbing at a high-rope garden – which really brings people together." The approach works, as can be seen by the fact that the apprentices also get together during their time off. And they meet for regular evenings out. When at work, Tanja – who is on a first-name basis with her charges – is the first contact partner for any questions about the program or possible concerns. She meets the young people on an equal footing. And they respond with a high level of trust.

"We also get together in our spare time."

Cedric Steffan,
chemical engineering assistant

Today they want to make a statement. "When we knew that we'd be playing miniature golf, we got some green, yellow, red, and orange neon tape and put letters on our black T-shirts," says Wickardt. She points to the "T" on her own shirt. And then she motions for the others to stand in a line. The neon letters spell the word TEAMPLAYER. That is the motto not only of the day but also of the entire apprenticeship program.

Back in the game, Marco Sonder and Lukas Mischkulnik confer on how best to hole out with a single stroke at hole 16. The two up-and-coming coatings lab technicians inspect the path along which the ball will have to travel. A steep incline is followed by a zig-zag pattern reminiscent of a marble track, and then a straight stretch to the hole. "Hit it precisely in the middle with just the right touch," suggests Sonder. Mischkulnik takes this advice to heart and sinks the ball on his first try. "Cool shot," is heard from the neighboring hole. Denis Huduti (22) is impressed. He pushes a pair of orange 3D glasses up onto his head. Now in his second year as a chemical production assistant, he has always been interested in chemistry. Later he wants to join the chemical technician program. It has higher entry requirements, and its members may not miss more than ten days a year. He has good chances of being accepted.

He also has good chances of full-time employment. "We take on about two thirds of our apprentices offering an open-ended contract," says Nebroj. But that doesn't mean there's nothing more to learn. The company encourages its employees to pursue further education. Those who want to qualify as a master technician (Meister) alongside their job, for example, can receive financial support from the company.

But today's miniature golf outing is not about professional achievements. Its focus is on building team spirit. And that's why its schedule includes having dinner together later in the evening. ■

"The good support was a crucial factor in my decision."

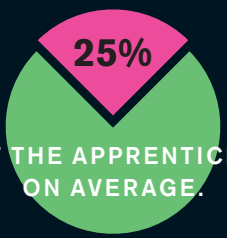
Arefe Kibaroglu,
coatings lab assitant

WÖRWAG IS CURRENTLY TRAINING

26

APPRENTICES.

WOMEN MAKE UP



OF THE APPRENTICES ON AVERAGE.

THE COMPANY HAS BEEN TRAINING APPRENTICES SINCE

1943

WÖRWAG ACCEPTS 8 NEW APPRENTICES A YEAR.

THE COMPANY THEN EMPLOYS

2/3

OF EACH CLASS ON AVERAGE.

APPRENTICES MEET FOR A NIGHT

2–3

TIMES A YEAR.

168

OF WÖRWAG'S EMPLOYEES HAVE COMPLETED AN APPRENTICESHIP AT THE COMPANY SINCE 1986.

Training programs at Wörwag

Coatings lab technical assistant

They test new paints to confirm the desired features, evaluate measurement data online, and investigate the reasons for any problems. As the job title suggests, they work in a lab, where they develop coating substances with new technical properties and improve the environmental compatibility of our products.

Chemical engineering assistant

They work at the interface of lab and production. They know the raw materials, work processes, and production systems. They also test the quality of our paints. At the end of their program, they have acquired a wide range of knowledge and skills.

Chemical production assistant

Production assistants are involved throughout our paint creation processes. They have to know the raw materials and the work processes and how to operate the machinery. Quality control is another important task, and the assistants help to make sure that paint properties remain constant over the entire course of production.

Interested in a training program? Apply now to:
www.woerwag.com/en/trainees

"Young people respond when you show interest in them."

Tanja Nebroj leads the training department at Wörwag since 2008.

Ms. Nebroj, the jobs that Wörwag trains its apprentices for are not the most popular ones. Is it hard to find interested candidates?
Yes, it is. Our jobs are not widely known among high school graduates. And chemistry is not a favorite subject anyway. But all fields of work at our company are very exciting. To spread the word, we do various types of outreach, including working together with schools where we present our training opportunities at regular intervals. When the students realize how varied the work of a chemistry technician is, for example, they quickly become interested. So thus far we've been able to accept eight candidates a year.

A varied program awaits them, with an introductory week that includes climbing and other team activities. And there seems to be a priority on making sure people are happy.
That's right. If people enjoy good relationships with each other, they'll also work well together. Our apprentices know the premises quite well and have an impressive network. Our training program promotes interpersonal as well as technical skills. And everyone benefits from that.

The apprentices would say you're an important part of the program's success!
They're just trying to flatter me. No, jokes aside, I try to set a good example, and I'm committed to and enthusiastic about my job. Young people respond when you show interest in them. I'm there when they need me, but I also let them know in no uncertain terms if things are not right. The apprentices know where they stand with me and I'll tell them exactly what is expected.

ADMINISTRATION

Ms. Power-Banf

Tough at the negotiating table, cheerful in everyday life. Denitsa Ivanova from Bulgaria loves challenges. The buyer has already mastered a major one at Wörwag.

By Michael Thiem **Photo by** Rainer Czarnetzki

Denitsa Ivanova could also work as a life coach. She would be successful, because her tips are actually quite easy to put into practice. It's all in the mind, that's her motto. The town or country you live in is not the critical factor governing your wellbeing. "Your attitude is the most important thing. It has to be the right one. When you take a chance to start something new, you have to go all in, 100 percent," says the 39-year-old. "You always feel comfortable when you are doing something you enjoy: going to a movie, meeting friends, sitting at a café, having fun." She followed that principle to the letter when she came to Stuttgart from Sofia seven years ago with her husband and then four-year-old son Martin – and never regretted taking that bold step. "My husband had a job offer, so we seized the opportunity," Ivanova says, looking back.

Ivanova is a bundle of energy. And fearless. Even when she didn't have such a good command of the language as she does now, she approached others without any shyness. People who don't ask questions won't get answers. During her first two years in Germany she learned the language. Her accent has remained, and she's still working on the Swabian dialect. She gets to hear it every at Wörwag. She started there in 2013 with an internship in Purchasing, then filled in for a colleague on maternity leave until it became a permanent job in 2013. "I was faced with new challenges every day. But my co-workers helped me a lot," she says. In addition, Wörwag enabled her to take another language course in the early phase.

Now she has acquired a good negotiating skill level. Tough in price discussions, but with a realistic sense of the market, the competition, the availability of products and services. "Wörwag and the supplier have a mutual interest. That's the common ground we have to find," says Ivanova. At the same time, you have to deal with the partners fairly and find the right tone. The 39-year-old is responsible for spare parts and laboratory supplies in the Purchasing Department. Furthermore, she is in charge of IT solutions in Purchasing and therefore works closely with the colleagues there. In the last two years she has been handling the introduction of the purchase requisition system (BANF) into the Navision system. "Many people here probably think of me when Banf comes up," she says jokingly. "I'm often the Banf hotline that provides support when needed."

Her current project: setting up a workflow for the raw materials facility. It's a challenge she doesn't shrink from. So far there is only one problem that she hasn't found a solution to: for the last year she has been trying to pull off an overhead tennis serve – to no avail. Presumably it's only a matter of time until the serve succeeds.

Juggling figures is day-to-day routine for buyer Denitsa Ivanova.

NEXT LEVEL

Being ready for anything, removing obstacles, reacting quickly, thwarting threats: why the IT staff at Wörwag sometimes feel like they're in a jump-and-run game. Their mission-possible-with-a-great-deal-of-effort: to keep everything running.

By Michael Thiem **Photos by** Rainer Czarnetzki

Gustav Svensson
IT Application Management NAV

Christine Heitland
IT Administration

840 COMPUTERS

Where has Alexa got to? Gustav Svensson can call out as long as he wants. In the gymnasium, he's on his own. At home, the man from the Wörwag IT department has five personal assistants at his beck and call, one in each room. "I use them to control lighting, heating and music, among other things, with my voice," he explains.

But now the photographer is giving the orders. The direction is clear: upwards. Svensson climbs the ladder, and this provides an image for the photo montage for the setting of the computer game "Impossible Mission" from the 1980s. In this cult game, Agent 4125 has to foil the evil Dr. Elvin Atombender while collecting punch cards. An excursion into the stone age of IT.

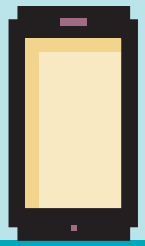
The IT people at Wörwag often feel like the secret agent, who doesn't know what awaits him on the next level. "There's no typical workday for us," confirms Klaus Fellmeth, Head of Group Companies & IT. "One call, one email changes everything. Every month we get roughly a thousand support queries." 80% of the problems can be resolved by IT staff immediately or within in a short period of time. The other problems take longer to solve, because they affect multiple computers and programs.

Only one requirement always stays the same: "The IT has to work. It's like with electrici-

ty, no one asks where it comes from. It simply has to be there," underscores Fellmeth, who together with his nine employees shores up the company's growth course from a technological standpoint. "Nowadays the sun never sets on the Wörwag world." With operations in Europe, the US and China, among other places, some systems have to be running around the clock. Otherwise orders cannot be recorded, delivery slips and invoices cannot be issued. "We organize most of it with our own staff here in Germany," says Fellmeth of the Herculean, not to say Sisyphean, task. Work that can only be handled on site is generally outsourced to external service providers.

One measure of the computing power is the speed of light. In Zuffenhausen it takes a millisecond for a signal from the server to reach the user via fiber optics. The transmission of the same signal to the US stretches to 110 milliseconds. By comparison: The blink of an eye takes 150 milliseconds. "We create the technical prerequisites so that such delays play no part in the course of the company's work," says Fellmeth.

THERE ARE 233 SMARTPHONES AT WÖRWAG



Michaela Schmitt
IT Administration

Sebastian Birmelin
IT Administration

THERE WERE 1,371,489 E-MAILS IN 2017

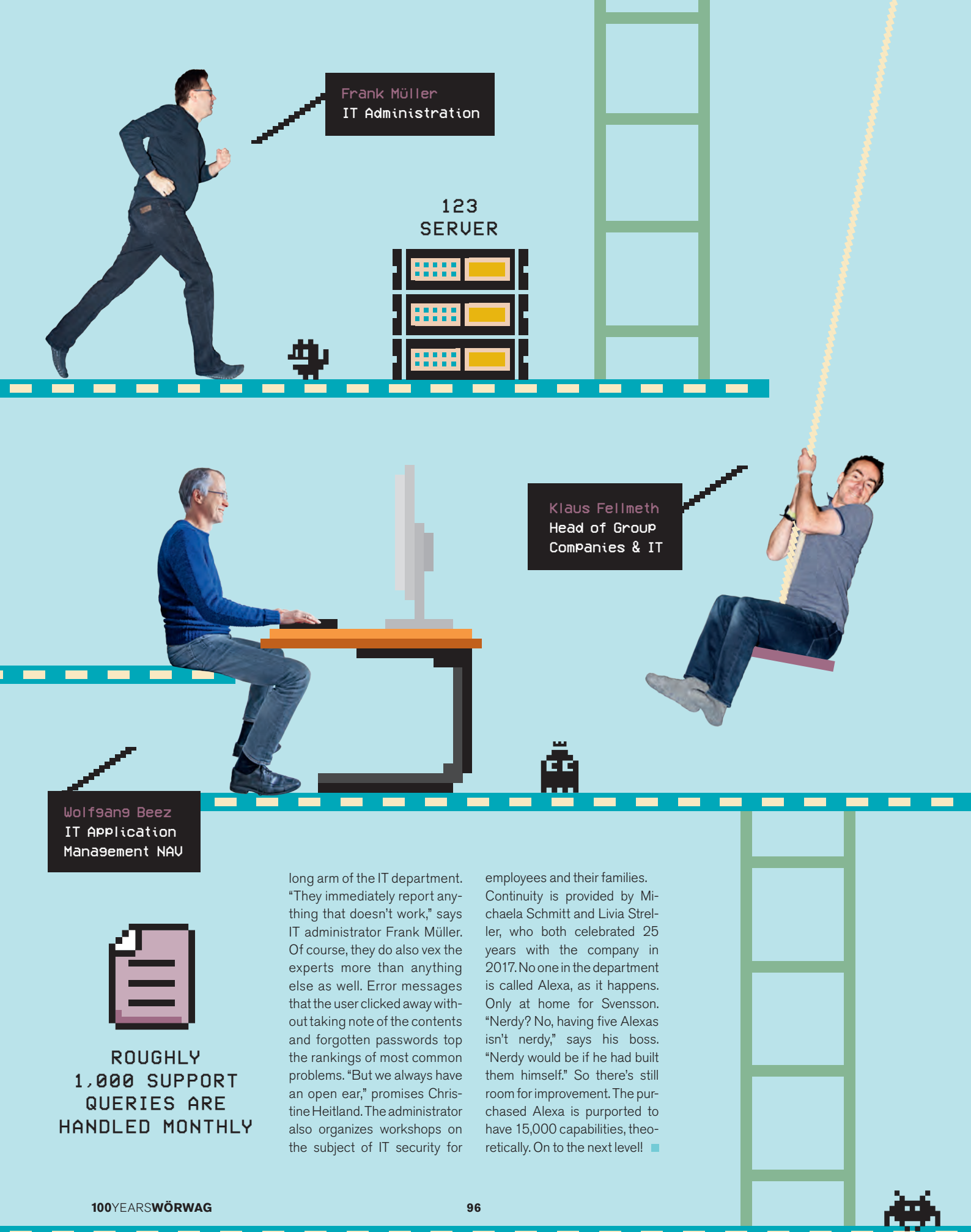
486,801 OUTGOING

884,688 INCOMING

But the power of IT is not only expressed in reaction times. The tasks in themselves are also much more diverse than they are in the computer game. Fellmeth's team is responsible for the provision and management of the entire infrastructure of hardware and software, including the lines, servers, desktop computers, printers, 233 smartphones, firewall and applications. Many jobs are completed behind the scenes, from the user's perspective. And the requirements change all the time, too. The IT department increasingly assumes a coordinating function. "We are on the way to becoming technical consultants," prognosticates Fellmeth. "There will be fewer and fewer in-house systems, but at the same time we'll help colleagues in the core business map their processes optimally." Administrator Sebastian Birmelin summarizes the issue with a sly wink: "We are responsible for everything that has more than two wires." He recalls the time when he was called on to click ahead to the next slide at the right moment during a presentation.

When duty calls, IT is there. And when conventional means fail, the IT cracks at Wörwag apply their innovative acumen. Once, when a server was so heavy that it could scarcely be moved, they greased the floor with pork rinds.

Users often serve as the



long arm of the IT department. "They immediately report anything that doesn't work," says IT administrator Frank Müller. Of course, they do also vex the experts more than anything else as well. Error messages that the user clicked away without taking note of the contents and forgotten passwords top the rankings of most common problems. "But we always have an open ear," promises Christine Heitland. The administrator also organizes workshops on the subject of IT security for employees and their families. Continuity is provided by Michaela Schmitt and Livia Streller, who both celebrated 25 years with the company in 2017. No one in the department is called Alexa, as it happens. Only at home for Svensson. "Nerdy? No, having five Alexas isn't nerdy," says his boss. "Nerdy would be if he had built them himself." So there's still room for improvement. The purchased Alexa is purported to have 15,000 capabilities, theoretically. On to the next level!

ROUGHLY 1,000 SUPPORT QUERIES ARE HANDLED MONTHLY