



WWO – the company

Oliver Weist is someone who has apparently done everything right. Thanks to his parents' painting business, the innovative entrepreneur not only grew up with paint; it also became his professional life's purpose. Weist became a professional painter and varnisher, then a certified technician for paint and varnish technology. Later on he graduated in business administration and finally set up his own business with a focus on powder coating.

Since 2007, Oliver Weist has been the sole head of weist + wienecke oberflächenveredelung GmbH (WWO), a company founded in 1996. The company, based in Alfeld near Hildesheim, now employs around 20 people and specializes in powder coating.

WWO – the powder coating company with a passion for perfection relies on OptiSense

State-of-the-art coating thickness measurement ideal for the medical technology industry

WWO makes important contributions to the demanding coating standards in medical technology. The innovative company has been classified as system-relevant since the beginning of the Covid crisis. Quality requirements are particularly high in medical technology, as the surface of medical equipment must meet numerous demands such as resistance to special cleaners and disinfectants.

To ensure the durability of the coating, many factors are involved, first and foremost the coating thickness. Oliver Weist, Managing Director of WWO, explains the importance of testing these factors.

Mr. Weist, you are the founder and managing director of WWO. What is so special about your company?

Weist: We have been using powder coating for over 25 years. It is one of the most environmental friendly and advanced coating processes to achieve a perfect surface finish on metal parts.

Our services are complemented by effect coating, wet painting, sandblasting and screen printing. From the beginning we have continuously developed and today our equipment is flexible enough for large series and one-off production.

Medical professionals are committed to the health and lives of their fellow men every day. They must be able to rely 100 percent on their medical technology and instruments. A high-quality surface coating plays an important part in meeting this requirement

Foto: draeger.com



Who are your customers?

Weist: Well-known companies such as Deutsche Bahn, Miele, AEG, Telekom and Continental, but also specialists requiring particularly sophisticated coatings for medical technology, such as Dräger.

Can you describe the specifics of medical coatings in more detail?

Weist: Medical technology has highest demands on materials, design and manufacturing. In addition to strict hygiene standards, the surface must also meet haptic, ergonomic and technical requirements. Let's take a surgical instrument as an example. The surface coating must be very dense, void-free and dirt-repellent to reliably prevent contamination. On the other hand, it must be elastic and provide excellent substrate adhesion to prevent paint splinters from entering the surgical wound. To achieve this, a precise coating thickness is extremely important. If it is too thin, durability and electrical insulation may be compromised. If it is too thick, the coating might develop cracks, bubbles or ripples.

Slightest errors in the production process can have serious consequences for the patient and the surgeon. The coating thickness is essential for the proper operation of the part and must be closely monitored. We can process complex laboratory structures as well as the entire

range of medical technology components, from articulated arms and cruciform bases to equipment for mobile hospitals. WWO's novel coating technology features a highly resistant surface that significantly reduces the spread of germs. This hygiene concept minimizes the risk of infection by health-threatening pathogens or microbes.

“The difference to our competitors is the decisive added value that we give to our products.”

Oliver Weist,
Managing Director WWO

What is your unique selling proposition?

Weist: In contrast to our competitors, we provide our products with a decisive added value so that our customers can achieve their targets and are satisfied with the result. This means excellent quality, punctual delivery and a truly comprehensive all-round service.

WWO offers its customers a full range of consulting services. We are often involved in the early design stage, especially when it comes to "tricky" coating tasks.

Ultimately, we share the passion for perfection with our customers.

You just mentioned the excellent coating quality as an added value. How do you check for possible errors?

Weist: Well, ideally, coating faults do not occur in the first place. Dozens of quality checks are carried out every day in our own laboratory to ensure that only flawless products are delivered to the customer. By the way, non-contacting coating thickness measurement has been part of our quality assurance for years.

Speaking of coating thickness testing, how do you carry it out in the process?

Weist: Let me first briefly explain our coating process. In powder coating, electrostatically charged plastic powder is applied to parts made of electrical conductive metals such as steel or aluminum. Subsequent baking at up to 200 degrees Celsius melts the powder in the oven and bonds it to form a durable surface.

Especially in the medical field, the parts are coated with very high-quality materials. Along with decorative and visual aspects, functional surface finishes are playing an increasingly important role, because technical improvements or additional product properties can be achieved in this way. To achieve these desired surface properties, a precise

“ *The PaintChecker mobile from OptiSense fits perfectly into our process workflow. And it is extremely accurate.* ”

Oliver Weist,
Managing Director WWO



The PaintChecker mobile family

Compact controller and ultra-light sensor

The complete measuring system consists of two units: The controller with the evaluation electronics and the lightweight, compact sensor as the actual measuring device. The tiny dimensions of the smallest sensor of 130 × 25 mm with a weight of just 50 g enable measurements in places that were previously difficult to access.

The right sensor for every task

*The mobile OptiSense **laser models** are mainly used for smooth coatings on metallic substrates. Due to their tiny measuring spot, the slim laser sensors are particularly suitable for coating thickness tests on delicate small parts, corners and edges.*

*Due to the larger measuring spot, LED sensors are ideal for freehand measurements on rough surfaces. The **PaintChecker mobile Gun-R** model is particularly suitable for components made of plastic or rubber.*

*The **PaintChecker mobile Gun-B** is optimized for non-parts contacting tests of freshly applied powder coatings before baking. It measures the still soft powder coating on substrates such as metal, glass or plastic, independent of color and type. The shrinkage during the baking process is taken into account.*

defined layer thickness is necessary. Depending on process stability, this coating thickness must be controlled permanently or at least randomly along the entire manufacturing process.

Are random checks sufficient for quality assurance?

Weist: We know our coating line very well and are sure that it operates stable over an extended period of time. Our experienced staff quickly identifies unexpected errors and takes immediate countermeasures. To maintain a high level of quality, it is therefore sufficient to measure only a portion of the medical parts per shift. And this is a very typical application for a handheld measuring device and the reason why we chose the Paint Checker mobile from OptiSense.

How did you become aware of OptiSense?

Weist: We had a look at various coating thickness gauges at trade fairs and asked for loaners to evaluate them here in our production. The OptiSense system is the one fitting best to our process workflow and it is extremely accurate.

How exactly do you use the PaintChecker in your company?

Weist: We have several employees working with the PaintChecker mobile. And that is dead simple: Turn on, place sensor, trigger measurement via button – done. The proper sensor alignment is indicated



Coatings for components used in medical technology must be abrasion-resistant, mechanically resilient and, in many cases, antimicrobial.

Here, the head of WWO's quality assurance laboratory measures the coating thickness with OptiSense's PaintChecker.

by positioning LEDs and the measurement is confirmed acoustically. It could hardly be easier.

We check the coating thickness immediately after the coating booth when the powder has not yet been baked. This allows us to take immediate countermeasures if the coating thickness is not within the predefined tolerance range. This early measurement before curing avoids expensive rework and subsequent customer complaints.

So that pays for such a measurement device?

Weist: As with almost everything, it comes down to two important factors: costs and thus money, and savings. Many coating companies spend a long time evaluating whether an investment in measuring technology is worthwhile. However, the powder material savings, usually considered the main benefit, are not my priority. My focus is on a consistently high level of quality of the parts produced.

Is the Paint Checker also used to check parts for medical technology?

Weist: Of course! Since the beginning of the Covid crisis, we have been coating parts of respiratory equipment such as the support arm for the respiration hoses. Modern respirators are highly complex systems, have enormous long operating

times and require highest precision in coating. In addition, the hospital's hygiene regulations require that equipment be regularly treated to prevent infections. The PaintChecker is also suitable for measuring all our powder coatings with antimicrobial additives.

“The PaintChecker is particularly suitable for random sample measurements, large parts and small batches. And it also measures our antimicrobial powder coatings precisely and quickly”

Oliver Weist,
Managing Director WWO

The requirements placed on respirators are among the highest in the entire field of medical equipment. No wonder that the requirements on the coating are also extraordinarily high. An extremely even surface is most important. Chipping or inclusions in the paint could rip the gloves of the nursing staff resulting in a loss of protection from infection. Acute medical respirators have numerous areas that must be masked. Here we benefit from the fact that we have specialized in delicate masking work. The coating must

be applied so precisely that various individual parts, which come from all over Germany, can be easily assembled into a complete respirator. The joints of the apparatus must move without friction and the smallest bubble in the paint could lead to functional failure.

These are all good reasons to check the coating thickness already in the uncured condition. Of course, the coating is tested again after baking in the oven. By the way, we are now classified as system-relevant due to the coating orders from acute care.

This means huge responsibility and visionary entrepreneurial spirit...

Weist: Our company mission is to develop innovative solutions for our customers. This was recently honored with the "TOP100 Innovator" award and we have just made it to the top three nominees of the "Innovationspreis Niedersachsen".

We are of course ISO-certified and a member of the "Qualitätsgemeinschaft Industriebeschichtung". Since 2011, our powder coatings meet the very high requirements of the EMAS regulation – to name just a few of our certifications. The current hot topic of digitalization is also already deeply anchored in our processes – so we are ready for the future. *You have been relying on photothermal coating thickness measurement with Op-*



The headquarters of WWO in Alfeld near Hildesheim

tiSense for years. If you should draw a conclusion...

Weist: The PaintChecker mobile is easy to integrate into a contract coater's processes. It measures a wide range of different coatings fast and extremely accurate.

For us, coating thickness is one of the most important parameters. The sooner I can counteract deviations, the better. And because I like to be technologically up to date, I invest in quality assurance to ensure and further optimize our process reliability.



OptiSense GmbH & Co. KG
Annabergstraße 120
45721 Haltern am See
GERMANY
Phone +49 23 64 50 882-0
info@optisense.com
www.optisense.com

