Your Quality
Your Bottom line
“This brochure addresses adhesion. Its purpose is to ensure that the surface of products and components have desirable qualities before they are coated, glued, cleaned, printed or painted.

The brochure is also about customized solutions for individual needs, learning about our clients, testing ideas, providing consultation and assistance.

Even though our Plasma and Corona Surface Treatment cannot be seen by the naked eye, it can have critical impact on the quality of your product and your bottom line.

We hope you enjoy it.”

Kim Ege De Saabye and Morten Thrane, Tantec
Tantec develops innovative Plasma and Corona solutions for the electrical pretreatment of plastic and metal surfaces, ranging from small complex medical devices to automotive components and large plastic pipes. Since we started business in 1974 we have continuously focused on using our know-how and professional passion to solve each and every customer’s unique challenge to perfection with state-of-the-art technology.

We are Danish. We are financially strong. We have created our market leadership through incomparable engineering skills and an uncompromising attitude towards quality. We seek only one place in our world. To be the best.

From our Danish HQ we serve end users and OEMs all over the world. We work with agents in more than 25 countries and through Tantec’s own sales and service companies in
Germany and the USA. More than 95 % of our production is exported.

For more than 40 years, we have delivered several thousand solutions to customers in a wide range of industries. The two largest segments are the medical device industry and the automotive industry.

Tantec’s surface treatment technology is also used in the production process within, electronics, metals, cables, foam panels, packaging and more.

Having previously been under foreign ownership, Tantec is now owned by Morten Thrane, Kim Egede Saabye and a private Danish investor group.
The Difference is Obvious

Improved Quality for:

Coating • Bonding
The adhesiveness of a material depends on its surface tension (surface energy). In order to achieve high adhesion, the surface tension of the material must be greater than the surface tension of the glue, coating, paint, ink or other liquid being applied. When this is achieved the fluid will spread evenly over the newly modified surface at the microscopic level. This process provides suitable bonding sites on the surface to promote the greatest possible adhesion.

The molecular structure of polymers (plastics) and a number of metals have low surface tension which translates to poor adhesion properties. When these materials require a process such as a coating for example, it is necessary to first increase the surface tension.

An efficient method to increase surface energy is the use of Plasma or Corona treatment. In each case, the molecular structure of the top microscopic layer is changed. Surface tension is increased, and although the change is not visible to the naked eye, the newly treated surface is now optimized for further processing.
We know how

Let’s talk about the tec in Tantec

Tantec offers more than 20 different and well proven solutions for Plasma and Corona surface treatment of plastic and metal components. Each solution has been developed utilizing more than 40 years of experience and our outstanding technological know-how in the field.

All generators and control systems have built-in digital interfaces. Our solutions can therefore be easily integrated as an in-line process on existing production lines, as well as customizable for company specific applications. In addition, we offer both end customers and OEM’s options to design entirely customized surface treatment solutions. (see page 14).
Our solutions
Cover 5
technologies:

**CORONA - LOW FREQUENCY**
Partial treatment before ink jet printing. Suitable for:

*Pipes, cables, cast parts etc.*

**PLASMA - VACUUM**
Complete treatment under vacuum pressure. Suitable for:

*Car parts, medical equipment, household items, electronic parts, ophthalmic lenses, pipes and connectors, car interior parts, catheter tubes etc.*

**CORONA - HIGH FREQUENCY**
Partial and complete surface treatment. Custom designed for specific applications. Suitable for:

*Syringes, catheters, stoma care, needles, petri dishes, tissue culture bottles, interior and exterior car parts, propulsion parts, profiles, household appliances, sheets, window profiles, electronic devices, cables, etc.*

**PLASMA - ATMOSPHERE**
Partial treatment at high speed. Suitable for:

*Packaging, interior and exterior car parts, electronic parts, EPDM profiles, robot applications, etc.*

**MONTEC QUALITY CONTROL SYSTEM**
Tantecs Corona and Plasma Treatment Stations can be fitted with a unique monitoring system to enhance quality assurance, in which the current in each of the system’s electrodes is continuously measured.
You will quickly learn that, due to our many years of experience, Tantec puts great emphasis on consulting, testing, development and design. This means that from the first contact to final delivery and after-sales services, you are in the hands of dedicated experts with one thing in common: the desire that every customer receives the best possible solution.

This also applies to customized solutions. Here you will see that our development engineers have faced many challenges concerning effective surface treatments. Their knowledge of theoretical engineering and awareness of industry best practices provides them with the tools to solve the most complex problems.
When it comes to Corona and Plasma Surface Treatment, feel free to consult us and benefit from our expertise. We also provide thorough laboratory analysis of surfaces to develop optimal solutions.

At Tantec’s testing laboratory we test and analyze surface properties of plastic, metal products and components. We can also run simulations at real-line speeds.

Our knowledgeable electronics engineers have both experience and the tools to develop complete solutions as well as customized equipment, including power supplies and other hardware.

Once the central Corona or Plasma components are developed in our R & D department, Tantec’s mechanical engineering team will take over and design the most optimal treatment station. This is based on the customer’s individual specifications, including component size, volume and production speed.

Tantec’s project department handles the clarification of technical details and specifications, as well as ensuring technical drawings are ready for approval and planning the approval procedure.

All manufacturing, assembly and testing takes place at our Danish factory using exclusive quality materials such as aluminum, stainless steel, composite materials and ceramics. Tantec is quality certified according to the ISO 9001 standard and also has ISO 14001 environmental certification confirming our constant focus on environmentally aware manufacturing principles.

With Tantec’s global presence, our customers are ensured both fast and competent after-sales service - regardless of geography. Our services include operator training, maintenance, repair and on-site calibration of electronic equipment. If the machines are equipped with Internet access, we can also offer remote support on individual machines, thus minimizing downtime - and maximizing productivity.
Lars Palmelund has been a passionate electronics engineer at Tantec since 1989 and is the person behind our Vacuum Plasma technology and the patented technology RotoTEC-X.

“Only perfect is good enough.”
The Tantec spirit

Through the years Tantec has been characterized by a wholehearted passion, a great professional curiosity and a willingness to make products which are technically perfect. This is best demonstrated by Tantec’s creation of several new inventions and production processes.

A good example of the special Tantec spirit is the story of how our Vacuum Plasma came to be launched into the world.

Lars Palmelund is an electronics engineer and has been employed by Tantec since 1989. He remembers well that Friday afternoon back in the early 1990s, where the employees sat and enjoyed themselves before leaving for the weekend. During which, he suddenly got the spontaneous idea to investigate how high voltage would behave in a vacuum. The idea lead to a real experiment and a professional fascination was formed with the tiny light that emerged in the chamber.

“It almost reminded us of northern lights - and without knowing it at that time, we had actually reinvented the plasma chamber and laid the foundations of what is now Tantec's largest business sector,” explains Lars Palmelund, adding: “The R & D work at Tantec has always been characterized by a high degree of freedom in terms of both time and space to experiment. For example, it was also a little mathematical nerdery, which led to the patent on our RotoTEC-X. That's just how it is here in the department. I'm not satisfied with the good. Just the perfect.”

When Lars Palmelund started to create a mathematical model for the effect of the rotating Corona high voltage outputs in RotoTEC-X, he made a discovery that led to a significant improvement - and a worldwide patent.

Tantec's largest business sector is Vacuum Plasma solutions. The technology was developed by our own engineers in the early 1990s.
Whether you are an end user or an OEM, Tantec can develop Corona and Plasma treatment stations from scratch - tailored to your specific needs and specifications.

The development of a customized solution often starts in our laboratory, where we analyze the surface of the material to be treated. Based on test results, the size and shape of the objects, tolerances, volume, production speed, etc. we design the optimum technology and supplement if necessary with simulations of surface properties before and after treatment.

Then we design a treatment station that can be integrated as an in-line process in your production work-flow; simply plug and play.

Once all the drawings and approvals are finalized, we manufacture the completed treatment station with integrated generator, transformer, digital interfaces, etc.

After delivery and installation, we can supply on-site testing equipment, as well as training for the operators and other relevant employees.
FoamTEC  
Corona treatment of foam and cardboard. Used to treat extruded plastic sheets and foam material.

ProfileTEC  
Two typical applications for pre-treatment of automotive EPDM profiles with plasma before flocking and non-slip coating. In the flocking process, plasma treatment is required to achieve a strong connection between rubber and glue used for mounting. For non-slip coating it is necessary to treat before the spraying process, to achieve good wettability and optimum adhesion properties to the coating.

RotoTEC-X  
RotoTEC-X is used for in-line treatment of injection moulded parts prior to coating, printing, gluing, painting etc. Often the RotoTEC-X is also used simply for optimizing adhesion properties of a given substrate.

SheetTEC  
Corona treatment of sheets is considered an environmentally friendly process that uses relatively low power consumption.

VacuTEC  
VacuTEC offers very fast processing times and optimal adhesion properties for downstream coating, gluing, painting and printing. Treatment cycles are often short, between 20-120 seconds, depending on the material and its formulation.

CUSTOMIZED SOLUTIONS  
Customized solutions are specially developed by the Tantecs manufacturing department and customized 100% to customers’ wishes and requirements in relation to their production line.
Leak detection

High voltage can be used for much more than increasing the surface tension of a subject. By utilizing the principle that a voltage between two electrodes will always seek the shortest path, Tantec’s electronics engineers have thus developed a special technology that allows detection of gaps up to 3 microns.

LeakTEC can be used for nonconductive materials and is particularly suitable for quality testing cast and welded joints in medical instruments such as pipettes, needles, containers, etc.

The test is fully automatic and can be carried out at even very high production speeds. Via a digital interface, LeakTEC can be integrated with an existing production line so that defective items can be automatically segregated from the other items.

Induction heat

In the latest version in the series, Tantec has utilized its strong generator capabilities to develop a solution which generates induction heat from 2/4/6 kW and down to 10 watts.

Think in new ways
Customer Feedback

Quick support
“We have worked closely with Tantec on several projects, and at Carmo we are very pleased with the open communication and cooperative response. One of Tantec’s clear advantages is the quick support, and their many years of experience and knowledge. In solving complex challenges, it is also a key strength that they have a close dialogue with research institutes.”

Jan Kjærlund, Carmo

Quality and Passion
“Tantec has been working with Haydale for 3 years now since we requested a new vacuum plasma system to replace our previous version. The task was complex, but the engineering quality and project passion has been impressive, with the result that the R & D plus larger commercial units are now working in several UK locations, as well as in Germany and Thailand.”

Ray Gibbs, Chief Executive Officer, Haydale

Excellent cooperation
“For many years, Tantec has been an important partner for us - always fast, professional, service-oriented and reliable. The collaboration with Tantec has enabled us to use state-of-the-art technology that has been very important for us to successfully develop and launch new products.”

Egon Triel, Head of Mechanical Design, Coloplast A/S, Denmark

Long-term partnership
“We have worked closely with Tantec for many years on various projects, often using Tantec equipment as part of our research developments and testing. Having the equipment from Tantec available in our laboratory makes our work faster and more efficient. The cooperation of Tantec has always been beneficial to both companies.”

Dr Michael Thomas, Fraunhofer IST, Germany

Long-term partnership
“We can only praise our excellent relationship. This supplier was very easy to work with, from the very first contact with the sales team, to the delivery of reliable and punctual Corona equipment, which we are still pleased with, including the after sales service. It was a pleasure to work with Tantec’s team and the equipment supplied has proved to be of high quality.”

Ezzat Iskander, President & CEO, Phoenix Biomedical Products Inc., Canada
When **quality, precision and durability** matter
Tantec offers solutions for a very wide range of different industries, most importantly, we deliver quality solutions to a demanding market where quality, precision and durability matter.

For more than 40 years, we have delivered our surface treatment solutions to many different industries and products, including:

- Auto parts
- Medical devices
- Cables and tubes
- Plastic sheet and packaging
- Foam and cardboard
- Electronics
- Foil and Films