LEADING IN
PRODUCTION
EFFICIENCY

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DÜRR

Two-wheeler painting

Complete solutions from a single source

Modular processes for scaleable production

Flawless painting results

Turnkey solutions for all materials and component sizes

MATERIAL REDUCTION
ENERGY REDUCTION
WASTE REDUCTION
EFFICIENT PROCESSES
WATER REDUCTION
DIGITALIZATION
OPTIMIZED LAYOUT
VOC REDUCTION

Dürr is a leading supplier in the design and implementation of state-of-the-art painting plants for all kinds of transport vehicles, be it cars, buses or trucks, planes, trains or agricultural and building machinery. For the painting of 2-wheelers Dürr offers a wide range of process technology, e.g. for various metals, non-metals or mix of metals. For plastic parts, which are usually more aerodynamic and have challenging, 3-dimensional profiles, Dürr's 3D-on-site robot software tool efficiently maps the best suited paint path to ensure quality, paint savings and low maintenance.

With a focus on efficiency in the painting process, Dürr supplies plants from the planning process to the implementation for all degrees of automation. Professional project management ensures successful onsite implementation within budget and scope.

Mastering the entire painting process

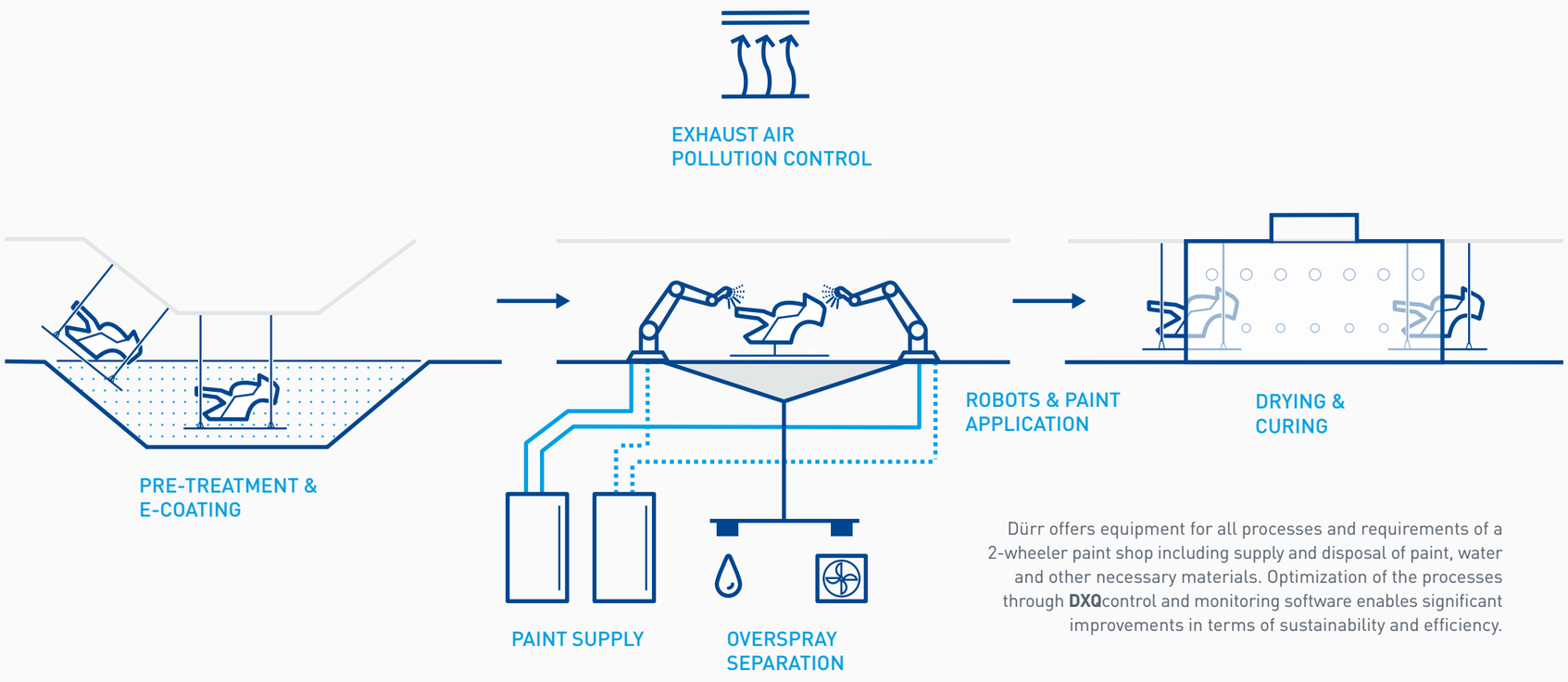
Quality products are only one stone in the complex mosaic of a paint shop. At Dürr, our focus lies on improving the efficiency over the entire process chain and plant.

TURNKEY SOLUTIONS

As a turnkey supplier, we are planning and implementing reliable complete paint shops for our customers, including all handling systems, application technology, environmental protection, electrical control architecture, infrastructure and utilities as well as digitalization of all processes.

CHALLENGING PROFILES

Two-wheeler parts are designed very aerodynamically and feature sophisticated 3D profiles. Dürr's software **DXQ**3D.onsite efficiently configurates the optimal painting path for each part.



Dürr offers equipment for all processes and requirements of a 2-wheeler paint shop including supply and disposal of paint, water and other necessary materials. Optimization of the processes through **DXQ**control and monitoring software enables significant improvements in terms of sustainability and efficiency.

CUSTOMER-ORIENTED ENGINEERING

In the planning and engineering phase, Dürr develops customer-oriented solutions to meet individual requirements, examines different implementation options, and finally specifies the optimal way of implementation. A well-structured project management takes into account all aspects of infrastructure, logistics, regulatory requirements or customs to ensure a successful implementation anywhere in the world.

SURFACE TREATMENT AND PAINT APPLICATION

Dürr offers a wide range of surface treatment processes for various metals, non-metals or metal mixtures. This includes efficient filter systems in the pre-treatment process that effectively clean the bath fluid from various metal dusts and contamination. For plastic parts Dürr offers special treatments with powerwash or CO_2 cleaning. The downstream e-coating process is implemented modularly in an energy-efficient way.

Additionally, our portfolio includes different kinds of spray booth variants for 2K painting. Dust protection, temperature and humidity control in a spray booth with air circulation result in lowered operating costs.

Dürr bundles its expertise in IT and mechanical engineering to create a powerful, digitally networked manufacturing system.

DXQ DIGITAL INTELLIGENCE BY DÜRR

DXQoperate

DXQanalyze

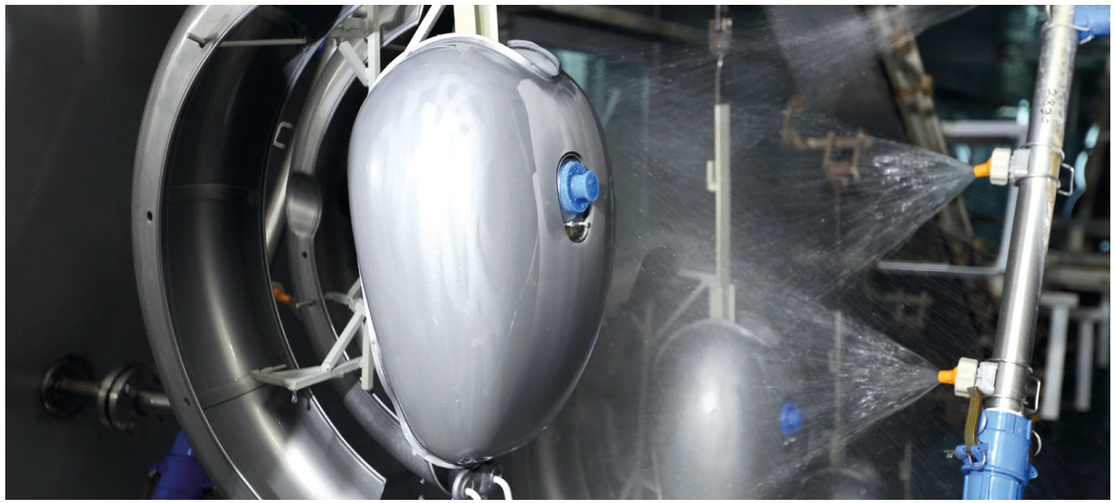
DXQcontrol

DXQsupport

DXQ software products are customized solutions created with several decades of experience in supplying and building paint shops for automotive OEM's and interface connectivity with customer ERP around the world. **DXQ** is efficient in plant operation, analysis, and control aspects.

Pre-treatment and electrocoating

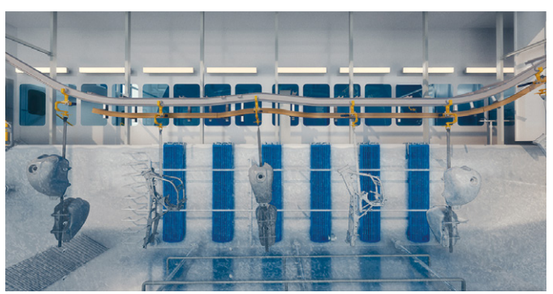
The basis for excellent surface finishes



- Highly efficient multi-staged bath cleaning
- Excellent coating on all materials

During pretreatment, the surface is cleaned by spray washing or by immersion in a bath. This is followed by etching. Depending on the substrate, pre-rinsing, de-greasing, surface etching or surface conditioning and sealing of the coating is carried out by a series of dipping and spraying steps to obtain a clean, corrosion resistant and coating adhering surfaces.

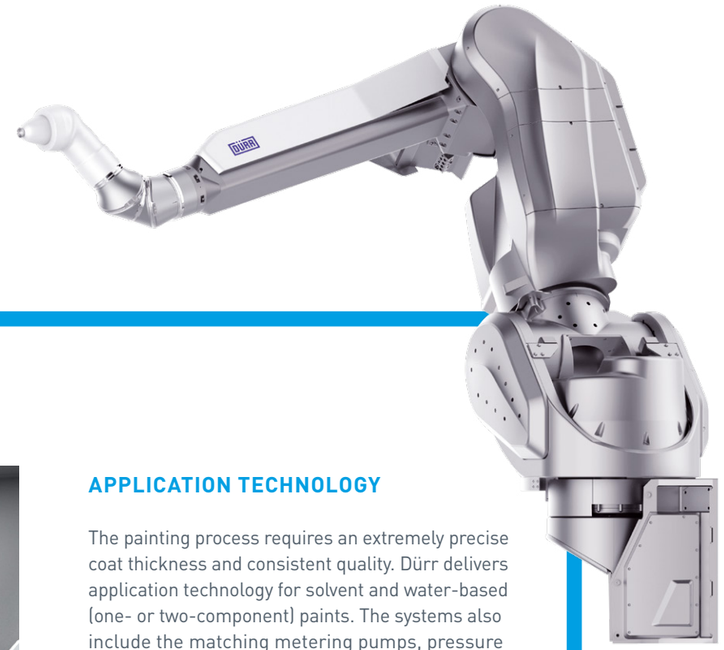
Continuous bath cleaning is ensured with a series of in-line filters, i.e. **Eco**MultiCyclone, **Eco**Magno and waste oil and sludge separation systems including requisite chemical dosing systems for consistent cleaning results. After this the surface is well-prepared for a chrome-free chemical conversion and exceeds – together with the electrocoating process – an extremely high corrosion resistance.



Modular anode control system

Paint application process

Precise coating at convincing quality

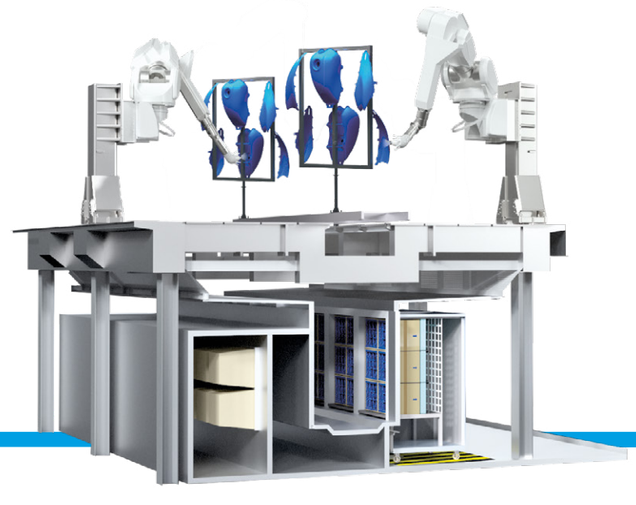


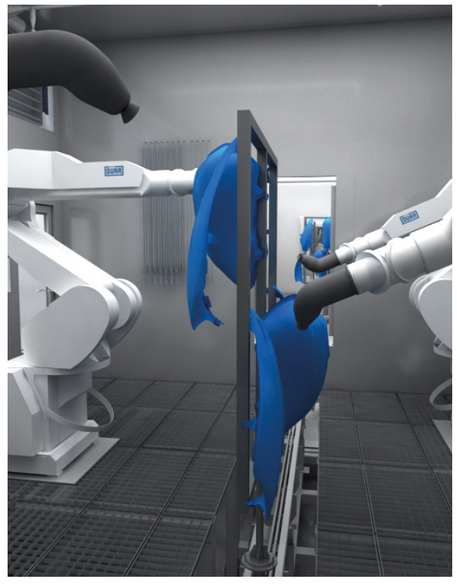
YOUR BENEFIT

- Manual to fully automatic processes
- High-end equipment for all types of paint
- Excellent paint application
- Easy and sustainable dry paint separation
- Quick and efficient colour change

PAINT MIX ROOM

In the paint mix room – specifically for solventborne, waterborne and corrosion protection paint – the paints are optimally prepared for the application of various layers. From simple manual processing to fully automatic systems for homogeneous mixing ratios and simple handling – Dürr offers paint supply systems for high runner colors as well as Dürr's **Eco**Supply P. For all these purposes we utilize our own product range of pumps, color changers and regulators.





APPLICATION TECHNOLOGY

The painting process requires an extremely precise coat thickness and consistent quality. Dürr delivers application technology for solvent and water-based (one- or two-component) paints. The systems also include the matching metering pumps, pressure regulators, and color changers. The painting systems can be equipped with automatic spray guns from the **Eco**Gun series or with electrostatic high-speed rotary atomizers from the **Eco**Bell series.

Dürr offers the complete robot technology – including application and control. All process controls and safety devices for Dürr painting stations are supplied by modular switch cabinets. The modular construction enables optimal configuration of the **Eco**RP robots for respective application processes. Dürr control systems stand for maximum customer utility and set the standard worldwide. We provide one common control architecture for painting robots and entire paint shop.

OVERSPRAY SEPARATION (WET / DRY)

Dürr offers both wet and dry separation of overspray. **Eco**Envirojet 3 is a high-capacity overspray wet scrubbing system for a wide range of paints, frequent color changes and flushing needs. **Eco**Vertijet is extremely compact and requires limited excavation. Automatic sludge handling ensures a sustainable waste disposal. More sustainable is the useage of **Eco**Dry X – it is the leading edge technology for an energy efficient process in downdraft booths based on dry separation with card boxes. Both systems allow a perfect process observation when provided with full-face glass housing.

Ovens

Quality curing for all material types

Dürr has focused on the development of highly energy-efficient, integrated furnaces with heating systems. Dürr air seals are designed by CFD simulations to prove function. Individual heat-up zones and temperature retention zones ensure a controlled and uniform temperature heat-up, even under different loading conditions. A uniform holding temperature provides excellent surface control.

A modular design with combined heat exchanger boxes provides maintenance benefits and superior aesthetics. Exclusive state-of-the-art digital temperature control ensures a precise and safe process.

Dürr's ovens are focused on minimizing energy loss, cleaning ease and uniform paint curing.

FORCED COOLING

Dürr's forced cooling solutions are highly ergonomic friendly. The clean-in-place modular constructions with embedded nozzles are mapped to component geometry. Their compact design is evidenced by integrated cooling boxes for supply and exhaust air.

MODULAR CONSTRUCTION

The modules consist of factory-made oven cassettes or pre-assembled oven sections with either a smooth or corrugated external surface. We offer a wide choice for paint shop scalability with a complete range of efficient air seal based straight-through ovens, energy efficient elevated canopy ovens or the compact A-shape elevated ovens.

Conveyors

Best logistics connections

Two-wheeler parts are numerous with complex geometries, these are handled as a nested tree structure or specific variant jig for each profile. Dürr offers the entire range of floor and overhead conveyors according to regional and customer-specific preferences. In order to avoid overspray paint deposits, the conveyor system is split into separate loops. The transfer between each conveyor and the process downstream is performed by manipulators, i.e. robots or cranes fitted with multiple grippers.

YOUR BENEFIT

- Integrated conveyor technology for all process sequences
- Automated processes with intelligent control
- Flexible and robust technology

In the pre-treatment and electrocoating, we offer overhead monorail conveyors or transporter cranes for dipping parts.

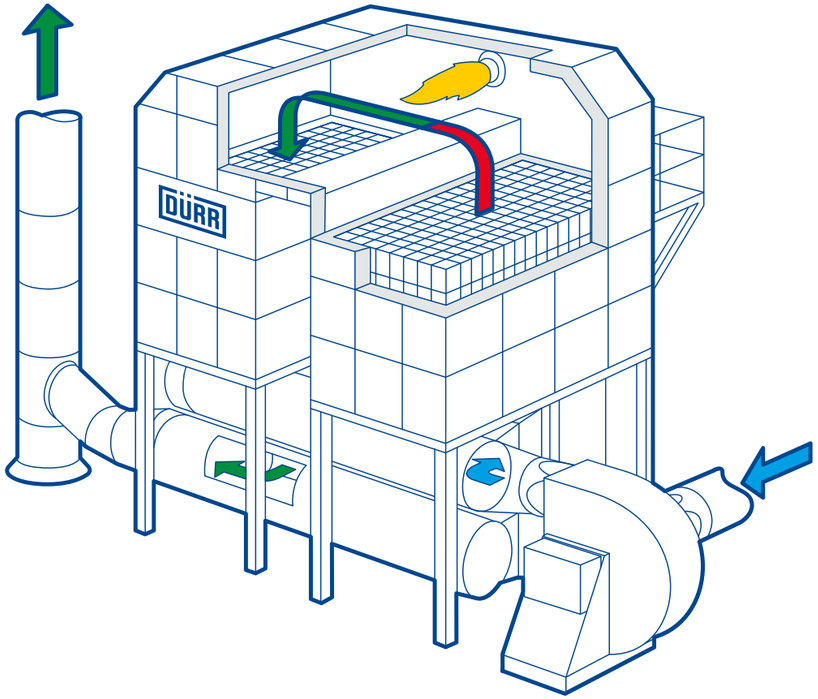
In the paint application line we offer overhead monorail conveyors for manual operation and floor-based conveyors (single line chain, dual chain skid) for robotic operation.

Overhead conveyor

Floor conveyor

Air pollution control experts

Efficient technologies for air pollution control



SUSTAINABILITY

Painting processes often produce exhaust gases and odors that can harm the environment if not treated properly. These gases and odors must be removed from the exhaust stream before they are released into the atmosphere.

Dürr offers all the main processes for treating exhaust air: oxidizers, catalyzers, adsorptive and absorptive processes, and particle filtration.

VOC REDUCTION

The Oxi.**X** recuperative (TR) and regenerative (RTO) thermal oxidizer are based on the process of thermal oxidation and thereby offer the most efficient air purification process for the disposal of combustible organic pollutants. With these technologies, organic substances in process exhaust gases are oxidized at high temperatures to convert them into carbon dioxide and water vapor. The produced thermal energy can be re-used for other processes via, air-to-air or air-to-water heat exchanges.

ENERGY REDUCTION

To make the treatment of large-volume and weakly laden waste airstreams economical, Dürr offers its VOC concentrator Sorpt.**X** CD concentrator. This system is a continuous adsorption process with a downstream oxidation stage, either thermal or catalytic. The adsorption is a physical process for accretion of gaseous pollutant molecules on an active surface, such as zeolites or activated carbon.

Your partner for successful production

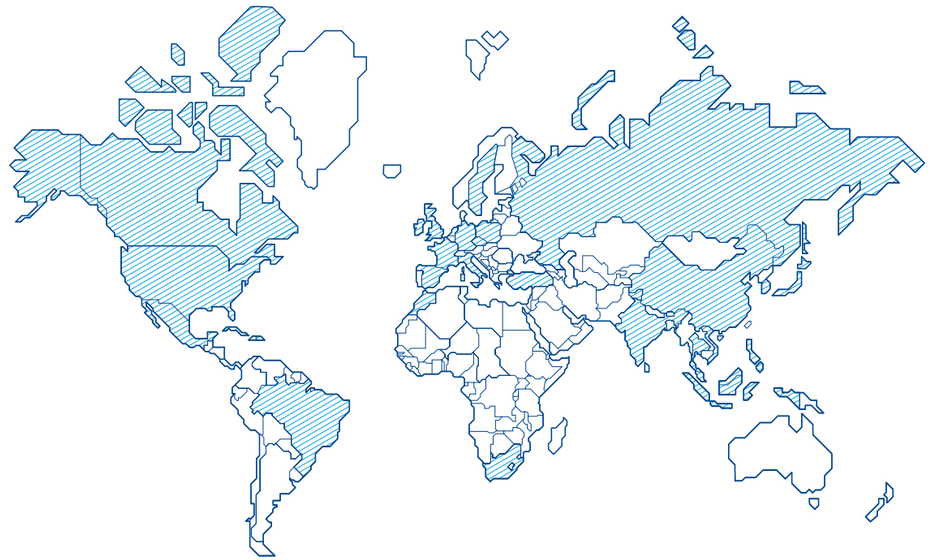
Dürr's Service & Solutions offers customer service support around the world. Dürr is always on-site to help to reduce production costs, increase plant availability and guarantee rapid technical support. Whether you are dealing with an emergency or planning or implementing a revamp project – we are available.

OUR SERVICE AT YOUR DEMAND

- Ramp-up and launch management
- Modifications and upgrades
- Engineering with experience
- Spare parts service
- Inspection and maintenance
- Service locations all over the world

Anytime and worldwide

Direct access to our service teams in your plant



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