AIRCRAFT PAINTING
FROM STRUCTURAL PARTS TO COMPLETE AIRCRAFTS

www.durr.com
Virtual reality designed by Dürr stands for transparency in the planning process together with a realistic and improved understanding of the process for all parties involved. All dynamic activities such as material flow, air flow behavior, robot simulation, uptime reliability and shift model, as well as operation modes and controls can be checked and optimized.

Our Portfolio for aircraft painting:
» CFD simulation & planning
» Dipping systems
» Paint booth & robot application
» Oven
» Conveyor systems
» Exhaust air purification
» Service

The Dürr Group is one of the world’s leading mechanical and plant engineering companies with outstanding painting expertise. Products, systems and services offered by Dürr enable highly efficient manufacturing processes in different industries.

Besides our experience of countless projects in the automotive industry, Dürr has been an acknowledged partner of the international aerospace industry for more than 100 years. Dürr is your expert in painting for every dimension and takes over the responsibility for simulation, planning, execution and service – all from one single source.

YOUR EXPERT FOR EVERY DIMENSION

Your benefits:
» Trendsetting technologies
» All from one single source
» Strong in-house expertise
» Experienced project management
» Worldwide service locations
» Quality management for aerospace standards
» Ready for IIOT

The basis for optimized production processes

Air flow simulation
» Paint hangar or booth
» Optimization of air distribution and exhaust
» Reduction of turbulences
» Determination of temperature profiles
» Concentration of harmful substances

Ventilation analysis
» Worker environment during painting (health and safety)
» Energy efficiency (air velocity, humidity, temperature)
» Harmful substances (in booth and in aircraft modules)
Aircraft paint finishing is a delicate process where structural, pre-assembly, and sub-assembly parts must be treated in different processes before the final coating is applied.

The main processes for the surface treatment are:

- Wet cleaning
- PFD (penetrant fluid detection)
- Anodizing
- Sealant application
- Primer and top coat application
- Waxing

Between the process steps, there are also a few intermediate processes such as sanding and grinding, activation, dry cleaning, and curing required.

Dürr offers customized solutions for your individual requirements.

AIRCRAFT PAINTING:

- Preparation
- Priming, cleaning, activation
- Primer, Top coat
- Drying/Curing

YOUR EXPERT FOR EVERY DIMENSION
Dipping systems
The first steps of the surface treatment are cleaning and degreasing of the parts, followed by pickling or etching and as a last step the deoxidizing – usually these process steps are treated in tanks.

After the wet cleaning process the main stressed structural parts are proofed with a non-destruction testing procedure (NDT) such as: Penetrant fluid detection (PFD) or liquid penetrant inspection (LPI).

Before starting with the anodizing process, the parts have to be wet cleaned again to remove the PFD and to keep the surface clean.

Energy saving ovens
Painted parts have to be dried by convection, mostly in a separate dryer or curing oven.

The range of the curing temperature is from 40°C/ 104°F to 120°C/ 248°F.

Dürr offers temperature control and uniform air distribution to avoid damage of the parts and to assure the required process parameters.

Booth and robot paint application
The booths are for preparation, sanding and painting. Keeping the temperature and humidity inside the booth is important because with every change of temperature the paint viscosity changes and thus the painting quality. Therefore it’s essential to control the temperature and humidity depending on the outside conditions. Backflow AC is the right solution for this task.

Automated painting application with paint robots and paint supply systems is becoming essential in the aircraft manufacturing processes. At Dürr, all the above processes are ready for IIoT.

Air pollution control systems – VOC-Concentrator
In some cases, governmental laws, local requirements, and VOC’s restrictions, require air treatment units. Common practice is to use catalytic or thermal oxidation systems to treat the concentrated air stream.

Ecopure® KPR adsorption system is a state of the art air treatment for this kind of process.

Booth and Tank Sizes Customized for your Requirements!

<table>
<thead>
<tr>
<th>PART</th>
<th>PART SIZE (UP TO) [LxWxH]</th>
<th>BOOTH/TANK SIZE (UP TO) [LxWxH]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wings Shells Structural parts</td>
<td>26 x 0.5 x 4 m</td>
<td>71 x 2 x 14 ft</td>
</tr>
<tr>
<td>Small booth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wings Shells Structural parts</td>
<td>40 x 0.5 x 4 m</td>
<td>130 x 26 x 26 ft</td>
</tr>
<tr>
<td>Large booth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wings Shells HTP/VTP’s Sections</td>
<td>34 x 0.5 x 4 m</td>
<td>111 x 36 x 33 ft</td>
</tr>
<tr>
<td>Combination booth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wings Shells Structural Parts HTP/VTP’s Sections</td>
<td>26 x 0.5 x 4 m</td>
<td>71 x 2 x 14 ft</td>
</tr>
<tr>
<td>Oven</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Airstreams</td>
<td>76 x 80 x 25 m</td>
<td>316 x 316 x 98 ft</td>
</tr>
<tr>
<td>Hangar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aircrafts</td>
<td>100 x 180 x 60 m</td>
<td>33 x 128 x 130 ft</td>
</tr>
</tbody>
</table>

Conveyor systems
An overhead conveyor system (OHC) is used to convey the parts to the dedicated tanks.

A conveyor enclosure protects the environment from air contamination by emission, but also the parts prevents the contamination of the surrounding areas.

SERVICES & SOLUTIONS
Dürr’s Services & Solutions customer service offers support worldwide.

- Global maintenance, service and spare parts availability worldwide
- Possibility of on-site maintenance
- Ready for IIoT (Predictive Maintenance)

Our service at your demand
Dürr – Leading in Production Efficiency

Five divisions, one goal: maximum production efficiency for our customers

- **Paint and Final Assembly Systems**: paint shops and final assembly systems for the automotive industry
- **Application Technology**: robot technologies for the automatic application of paint as well as sealants and adhesives
- **Clean Technology Systems**: exhaust-air purification systems and energy-efficiency technology
- **Measuring and Process Systems**: balancing systems as well as assembly, testing and filling technology
- **Woodworking Machinery and Systems**: machinery and systems for the woodworking industry