



1 *Paint shop for special vehicles.*

2 *Numerical simulation of the airflow in a painting booth for special vehicles.*

PLANNING PAINT SHOPS FOR LARGE OBJECTS

For over four decades, the Department of Coating Systems and Painting Technology at Fraunhofer IPA has been a partner of trade and industry for planning and optimizing paint shops and painting processes.

Planning and investing in a paint shop for large objects is a milestone project for a painting company. After all, it is essential that requirements in terms of paint quality, occupational safety and environmental protection are met in such a way that the company still remains competitive.

Fraunhofer IPA offers expert planning and investment support in three different project phases:

Project Phase 1

Conception, project planning and elaboration of technical specifications

Project Phase 2

Comparison of offers

Project Phase 3

Verification of the compliance of paint shop components after commissioning with regard to the technical specifications

You can rest assured that we will remain objective and maintain strict confidentiality before, during and after the project.

Project Phase 1

Conception, project planning and elaboration of technical specifications

When planning paint shops, Fraunhofer IPA follows precisely-defined steps. We start by recording the status quo. In the conception phase, alternative technologies such as airflow systems, non-enclosed paint spraying systems, energy efficiency and many more aspects are evaluated and selected. Detailed planning is the next step. Fraunhofer IPA also examines externally-developed concepts and elaborates technical specifications based on them.

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The technical specifications form the basis for the call for tenders for the painting technology. These specifications contain essential requirements that are decisive when awarding the contract. The requirements also apply as acceptance criteria.

The technical specifications include:

1. a description of the paint shop (concept, function and internal company requirements)
2. a description of the planned workflows
3. capacity of the paint shop (e.g. throughput)
4. paint shop components (e.g. painting booths, paint application systems, paint supply, explosion and fire protection equipment, paint drying equipment, conveyors, process visualization and control)
5. paint shop requirements (e.g. dimensions, maintenance, design)
6. regulations on delivery approval, final acceptance and training
7. documents specific to the paint shop
8. technical data

As a result, not only rationalization potential based on the current state-of-the-art but also new, innovative alternative technologies are investigated.

On request, the Fraunhofer IPA carries out an assessment of the paint shop's functions, as already described in the product sheet "Numerical Simulation in Painting Technology" using the example of "Air Technology".

Project Phase 2

Comparison of offers

Before a contract is awarded, Fraunhofer IPA compares and assesses the technical content of the incoming offers. If a company does not comply with the requirements in the technical specifications, it must adjust its offer appropriately. In order to compare offers, a catalog of criteria with an evaluation procedure is prepared on the basis of the specifications and agreed on with the customer.

Fraunhofer IPA then examines the documents related to the offer, carries out plausibility checks and evaluates the offers according to the catalog of criteria. The results of the comparison are prepared by Fraunhofer IPA in the form of decision tables and presented to the customer.

Project Phase 3

Inspection of paint shop components after commissioning

A date for the acceptance procedure is scheduled after an adequate trial period, during which functional tests are carried out and performance records are kept. The basis for this is the technical specifications and the respective catalog of criteria. After installation, the paint shop is inspected on site by Fraunhofer IPA in collaboration

with the customer and in the presence of the manufacturer. Several key functions are tested and subjected to standard test procedures in accordance with the specifications.

This includes in particular information about the air (airflow, air pressure, temperature, etc.).

Finally, the results obtained are discussed together with the paint shop manufacturer and, if necessary, any optimization measures ascertained or settings changed.

3 *Paint shop for large machine parts.*

4 *Painting hangar for aircraft.*