



## Pacelab APD

# Multi-disciplinary analysis of preliminary aircraft designs

Pacelab APD is a preliminary aircraft design software which supports the modeling, sizing, analysis and optimization of new and derivative aircraft to generate reliable data for strategic technology roadmap decisions.

### Benefits

#### Increased productivity

Save time to evaluate a wider range of design alternatives

#### More innovative designs

Focus on engineering not programming

#### Technology assessment

Evaluate product performance and risks early on

#### Investment protection

Leverage existing tools and methods

#### Reliable decision support

Back up investment and technology decisions

With a heavy increase in air traffic expected for the next few decades, aircraft and engine manufacturers are looking to give their products a substantial revamp to increase their productivity, while making them greener and more efficient. In the race for innovation, preliminary aircraft design and optimization capabilities play a critical role paving the way for new and emerging technologies such as electric or hybrid-electric propulsion systems.

Built on the patented Pacelab Suite design platform, Pacelab APD allows evaluating conventional and non-conventional aircraft configurations in terms of performance, economics and technological risk and helps to assess the impact of conceptual and technical innovations early on in the design process.

To fully leverage corporate engineering know-how and past IT investments, Pacelab APD supports the integration of commercial analysis tools, proprietary methods, legacy data and codes. This flexible, open software architecture also ensures that Pacelab APD can be customized to very specific or novel use cases.

## Key Features

### Flexible parametric model

Rapid from resident library or aircraft configurator

### Complex sizing missions

Easy-to-use graphical editor for defining operating requirements

### Flight performance model

Calculation of point, segment and mission performance

### Extensible methods library

Semi-empirical analysis methods for masses, aerodynamics, static stability, etc.

### Adaptable design focus

Easy reversal of input and output parameters

### In-depth design analysis

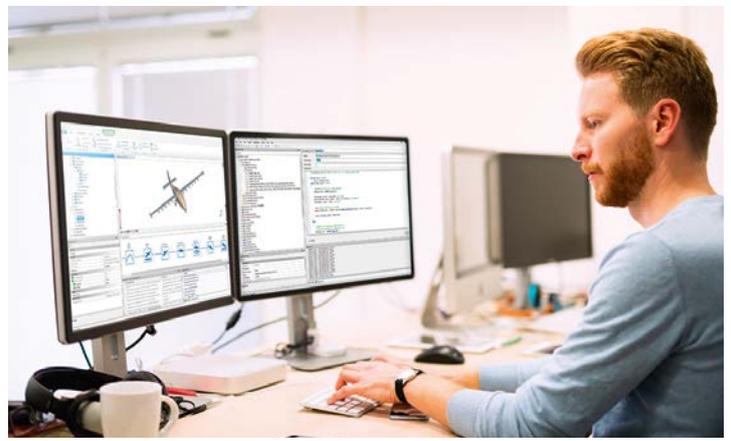
Sophisticated trade-off investigations and design optimization

### High runtime efficiency

Recalculations of equation system for changed sections only

### Open software architecture

Easy integration of commercial analysis methods and tools



## Exploring and understanding your design space

Setting up parametric aircraft models with Pacelab APD is quick – you can either browse the resident library for a suitable starting point or create your own baseline by installing and positioning predefined components such as wings, empennages, powerplants, winglets or undercarriages.

An easy-to-use graphical editor helps you flexibly define complex sizing missions to establish your design's flight environment and operating requirements. Pacelab APD also includes a standard set of analysis methods for mass, high- and low-speed aerodynamics, flight performance and static stability, which you can replace or extend with proprietary or higher-fidelity methods.

Pacelab APD is unique in that it lets you reverse the focus of your design investigation: Instead of tweaking configurations over and over to arrive at a given target, you can simply fix your target value and work your way back to the design input needed to achieve the desired result. This drastically cuts the number of iterations and gives you time for evaluating more alternatives.

To gain a better understanding of the limiting constraints and trade-offs involved, you can scrutinize the behavior of key parameters with Pacelab APD's fully-featured numerical and multi-objective optimization features. Paired with fully customizable visualization options, these enable you to clearly map out the topography of the design space.

Pacelab APD provides you with reliable data for product development decisions and ensures you proceed to subsequent design stages with a sound initial concept.

To find out more or request a free software demo, please visit our website at [www.txtgroup.com/markets/pacelab-products/pacelab-apd/](http://www.txtgroup.com/markets/pacelab-products/pacelab-apd/).

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[www.txtgroup.com](http://www.txtgroup.com)

**TXT**

Via Frigia, 27  
20126 Milan  
Italy

+39 02 257711  
[aerosales@txtgroup.com](mailto:aerosales@txtgroup.com)

**P A C E**   
a **TXT** company

Am Bahnhof Westend 13  
14059 Berlin  
Germany

+49 30 293620  
[paceinfo@txtgroup.com](mailto:paceinfo@txtgroup.com)