

# RACER – Rapid Cost Efficient Rotorcraft

## Airbus Helicopters High Speed Demonstrator



*Updated as of June 2017*

### Key Features

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- Racer is a high-speed helicopter demonstrator currently being developed by Airbus Helicopters as part of the Clean Sky 2 research programme.
- Building upon the achievements of the company's X<sup>3</sup> technology demonstrator, Racer helps refine the aircraft's aerodynamic configuration and brings it closer to an operational design with the objective of meeting future requirements for increase speed.
- The simplicity of the concept is one of the main assets of the aircraft configuration, which combines fixed wings for energy efficient lift, propellers (so called lateral rotors) for energy-efficient propulsion and a main rotor that provides energy-efficient VTOL (vertical takeoff and landing) flight capabilities.
- The demonstrator's design is optimized for a cruise speed of approximately 400 km/h and aims at validating the best trade-off between cost efficiency, sustainability and mission performance.
- Development of the demonstrator relies on a wide European network of almost 40 industrial partners.

### Main Missions

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- The aircraft targets missions requiring the helicopter's unique hovering and landing capabilities but for which travel time is either of vital importance (Emergency Medical Transport, Search and Rescue) or contributing highly to mission efficiency ( Passengers transport in the O&G industry, Private and business aviation etc.)

### Key Dates

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- 2010-2013 X<sup>3</sup> demonstration
- 2016: Completion of wind tunnel testing campaign validating Racer's aerodynamic design.
- 2017: Design configuration/ Preliminary Design Review
- 2018: Critical Design Review
- 2019: Prototype assembly
- 2020: Flight Tests

## Technical Specifications

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- Maximum take-off weight: Medium/ Super Medium Category
- Payload and cabin configuration adapted to targeted missions
- Cruise Speed: 220kt- 400 km/h

## New Technologies

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- Engines: 2 RTM322
  - Low weight hybrid metallic / composite airframe
  - Simplified & lightened MGB based on existing helicopter architecture
  - Full composite double-wing (« boxwing ») developed for lift efficiency, high rigidity for drive shaft integration and safe physical protection with lateral rotors.
  - Enhanced main Rotor optimized for drag & maintenance
  - High efficient pusher lateral rotors
  - Asymmetric tail boom optimized for hover performance
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