D328UPLIFT FLYING TESTBED

DLR Programme Management Agency for Aviation Research

Adrian Klassen – Head of Clean Propulsion Technologies

DLR Projektträger Luftfahrtforschung

D328UpLift Flying Testbed
Agenda

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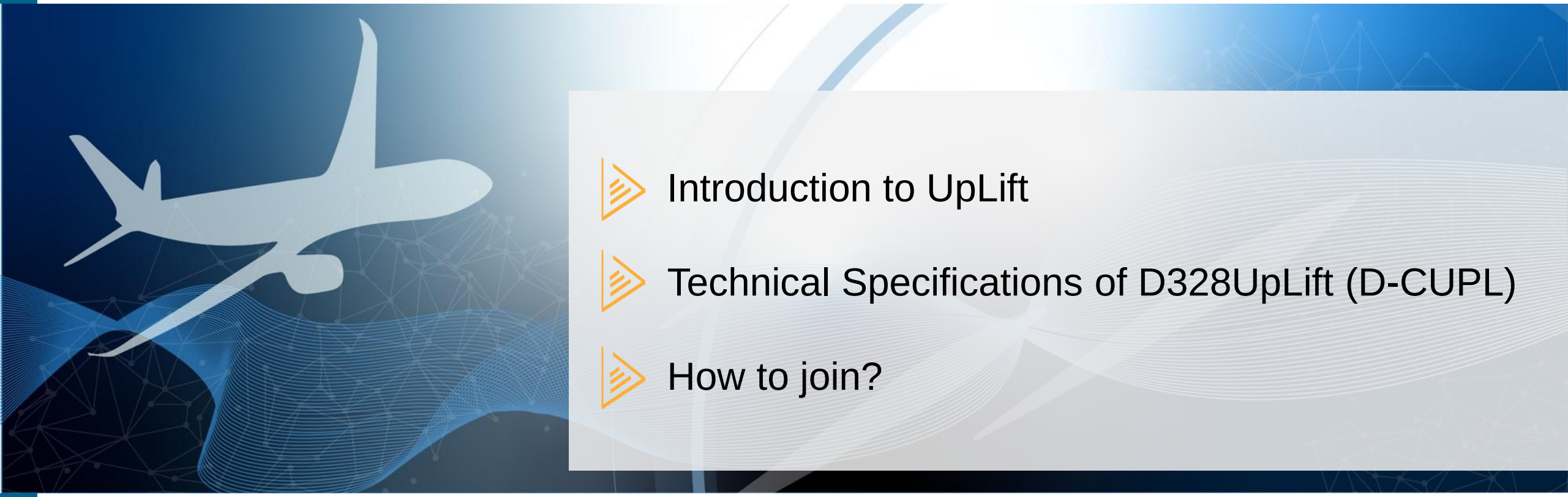

- Introduction to UpLift
- Technical Specifications of D328UpLift (D-CUPL)
- How to join?

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Introduction to UpLift

Introduction to UpLift
Motivation

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- Creation of an open & non-discriminatory test infrastructure to test and validate technology modules and subsystems under aviation-relevant operating conditions at an early stage
- Independence of the test environment is a prerequisite for providing a wide range of users with the opportunity to rapidly develop their own technology portfolio
- Closing capability gaps for the development of new climate-friendly technologies, especially under aviation-relevant environmental conditions

Introduction to UpLift
Test Facilities

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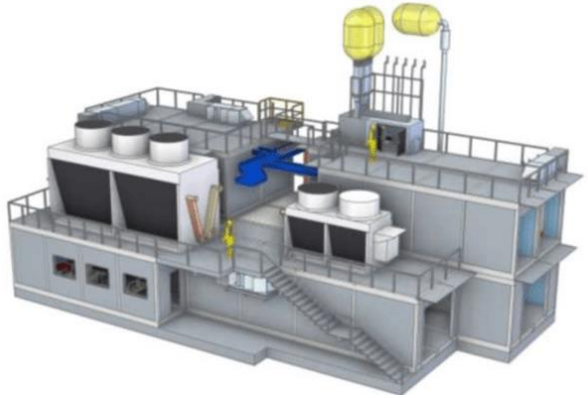
Ground Test Facilities

Pillar A: Electric Flying	Pillar B: Low-Emission Propulsion (e.g. Hydrogen Combustion)	Pillar C: Cryogenic Technologies (e.g. Hydrogen Storage)
		

- Additionally: D328UpLift Flying Testbed (D-CUPL)

Technical Specifications of D328UpLift (D-CUPL)

D328UpLift (D-CUPL)
Technical Specifications

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- D328-100, Turboprop Version, PWC 119C
- Max start weight 13.990 Kilograms
- Max altitude (ISA) 31.000 ft (9.450m)
- Max cruising speed circa 348 KIAs (TAS)
- Max Payload & flight duration
  - up to 2.100 kilograms (depending on fuel load)
  - up to 5 hours (depending on payload)

D328UpLift (D-CUPL)
Technical Specifications - Crew

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- Permanent DLR crew
  - Pilots (2)
  - Lead Flight Test Engineer (LFTE)
  - Flight Test Instrumentation (FTI) task specialist
  - On-board technician (as required)
- 1 – 2 experimenters from a user organization
  - Seating for the experimenter at their own workstation
  - Plus an observer's seat, if required
- Homebase Braunschweig
  - Flights available from other locations

D328UpLift (D-CUPL)
Technical Specifications – Mission power

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- Total capacity 400 A (28 V DC)
  - Available during all phases of flight
- The connections in the cabin are rated at 100 A
  - 5 connections in the cabin
  - 1 connection in the cargo compartment
- Ground Power Unit (AC & DC)
  - The existing GPU enables ground testing

D328UpLift (D-CUPL)
Technical Specifications – Wing Hardpoints

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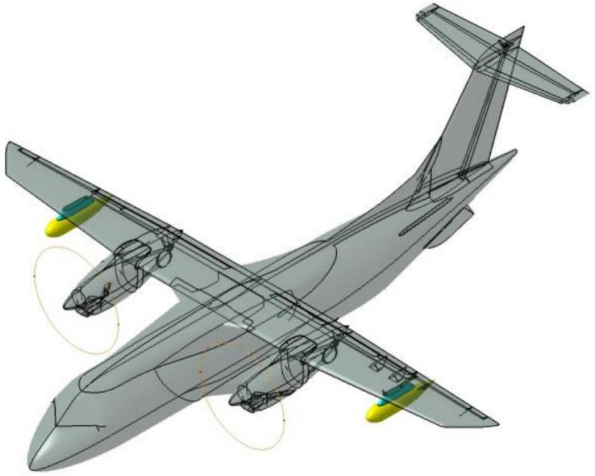
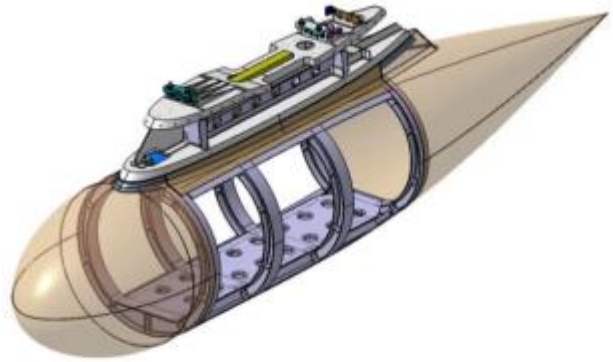
- Maximum 50 kilograms per hardpoint
- Fixed interfaces to the cabin
  - Electrical supply lines
  - Data cables
  - Further options possible
- Design concept for ‘Pod/Pylon’ in progress
  - Internal dimensions approx. 1500 mm x Ø 450 mm
  - Flexible design
    - Outer skin can be modified, i.e.. for air inlets/outlets





Possible Design Pod
(for demonstration purposes only)

D328UpLift (D-CUPL)
Technical Specifications – Fuselage Hardpoints

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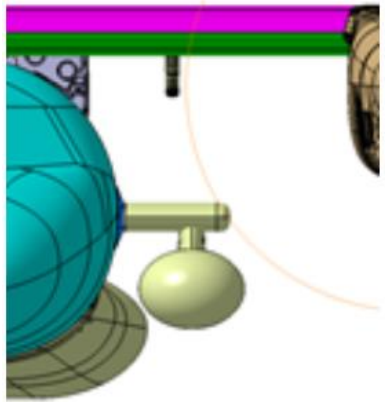
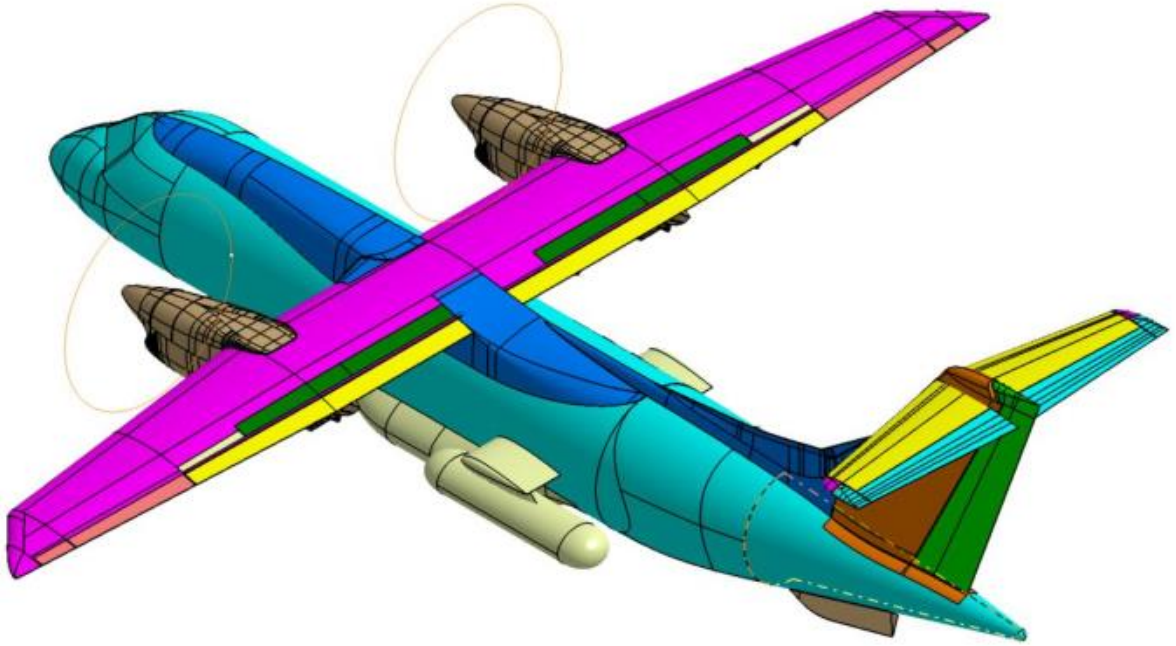


- Design concept complete
  - Implementation will only take place if there is a need
  - Lead time is approximately 24 months
- Maximum payload per side: 300 kilograms
- Interfaces to the cabin
  - Electrical
  - Hydraulic
  - Pneumatic



D328UpLift (D-CUPL)
Technical Specifications - Modifications

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- The installation of modifications by Deutsche Aircraft will be completed in 2026 with Supplemental Type Certificates (STCs)
- Flight tests can also be carried out under a Permit to Fly
- Once handed over, the D328 will be maintained, modified and operated by the DLR's Flight Experiments Facility Braunschweig

How to join?

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How to join?
UpLift and the JoinED Call

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UpLift facilities including D328UpLift (D-CUPL) can be used in international cooperations in connection with the **AREANA** international **JoinED Call**

JOINED CALL 2025/26

AREANA AVIATION RESEARCH ECOSYSTEM ADVANCED NOVEL APPROACH

Synergy MoU Group

Aviation Synergies

Overview international consortium

Participating countries (Status 12.01.2026): AT, DE, NL, RO, UK, CN-Quebec






How to join?
Cooperation with DLR Flight Experiments (DLR-FX)

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There are **two options** for cooperation:

- Involvement of DLR **exclusively as the operator** of the flying testbed: DLR is subcontracted by the foreign industrial partner as the operator of the test platform. The commissioning of modifications to an external design organization must be coordinated with DLR.
- Involvement of DLR **as scientific partner and operator** of the flying testbed in a German partner project (only possible with sufficient research contribution, including **publication of DLR results**)

How to join?
Further Information

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D328UpLift Flying Testbed

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Thank you for your attention!

October 2024: first measurement flight campaign using 100% PtL-proxy fuel (0% aromatics and sulphur) in the D328, followed by the DLR Falcon 20 equipped with measurement instruments