PROJECT 0149

# DRooTES: Tunable Aerofoil Trailing-Edge Noise Reduction

*A detachable double-rooted serration designed to reduce aerodynamic noise at selected frequencies*

Brunel University of London

## THE OPPORTUNITY

Aerodynamic trailing-edge noise affects aviation and wind-energy operations. DRooTES offers a retrofit component whose geometry can be tuned to reduce noise around a selected operating frequency.

## 1 TECHNOLOGY

A separately manufactured add-on attaches to an aerofoil trailing edge. Its paired-peak, double-rooted serration geometry is calculated using the target sound frequency and air-flow velocity.

## 2 APPLICATIONS

- Wind-turbine blades
- Aircraft aerofoils and high-bypass fan blades
- Other aerodynamic surfaces where trailing-edge self-noise is important

## 3 KEY BENEFITS

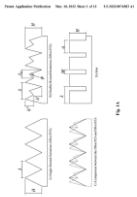
- Frequency-targeted noise reduction
- Retrofit add-on rather than cutting the aerofoil
- Up to 7.2 dB reduction reported for a tested DRooTES geometry
- Geometry can be optimised for flow conditions

## EVIDENCE & DEVELOPMENT STATUS

- Wind-tunnel testing in Brunel's aero-acoustics facility
- Tests covered air speeds from 20 to 60 m/s
- DRooTES compared with baseline, single-rooted serrations and slit trailing edges

## IP & OWNERSHIP

Patents granted in UK, US, EU and China



DRooTES and related trailing-edge geometries

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