



AF1300D3 HELICOPTER BLADES

AF1300D3

Two helicopter blade aerofoils, specially designed to demonstrate the capabilities of Digital Image Correlation (DIC) in aerospace structural analysis and material testing.

KEY FEATURES

- A pair of wind tunnel specimens that work as standalone specimens but can be enhanced with TecQuipment's DefleX®-3D DIC system.
- Deflection of cantilever specimens with increasing wind speed.
- The aerofoils' surface is designed for easy respeckling to match your DIC requirements.

DESCRIPTION

The AF1300d3 features a set of two carbon fibre helicopter blades for use as aerofoil specimens in TecQuipment's Subsonic Wind Tunnel (AF1300/AF1300s).

The AF1300d3 Helicopter blade specimens have been specially designed to be used with TecQuipment's DIC measurement apparatus DefleX®-3D and DefleX® Camera Mount (AF1300DCS). Their thin profile and carbon fibre build makes them flexible under load. Coupled with the Three-Component Balance (AF1300t) a comprehensive set of experiments can be explored, allowing students to analyse the deflection characteristics of aerofoils under wind loading.

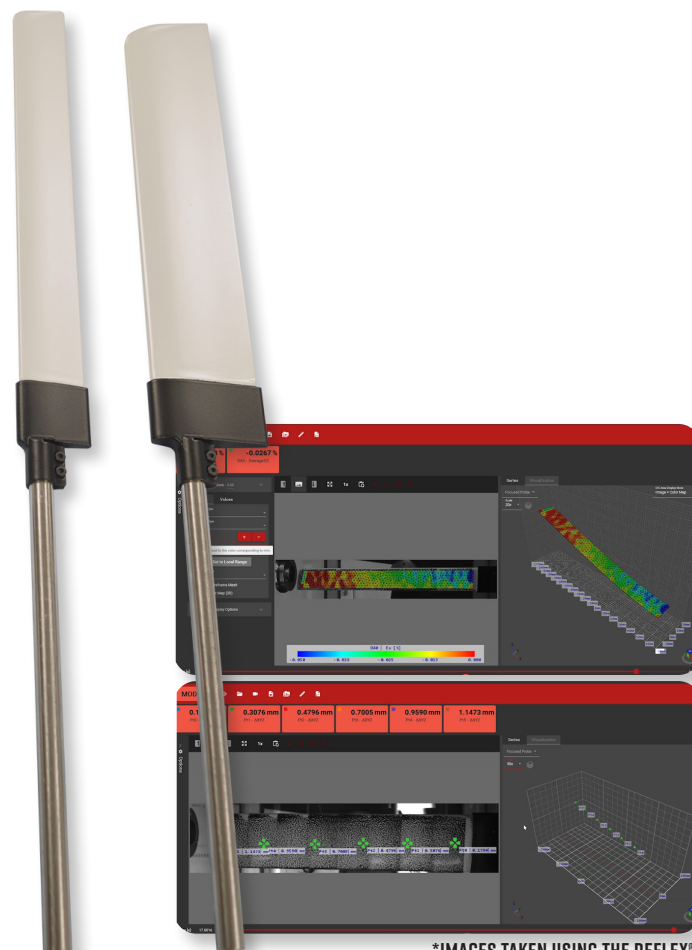
These specimens are usable without DefleX®, however, and a full list of experiments around determining lift drag characteristics is included in this user guide alongside DefleX® specific experiments.

LEARNING OUTCOMES

- Lift and drag performance with varying angle of attack
- Lift and drag performance with varying wind velocity

When used with DefleX®-3D and DefleX® Camera Mount (AF1300DCS):

- Understand how helicopter blades/aerofoils deform in flight
- Investigate the cantilever-like relationship between deflection and applied load
- Measure the effect of changing speed and angle of attack on the deflection of aerofoils



STANDARD FEATURES

- Five-year warranty
- Made in accordance with the latest European Union directives
- ISO9001 certified manufacturer

WHAT IS INCLUDED

- Small helicopter blade x 1
- Large helicopter blade x 1

ESSENTIAL BASE UNIT

- Subsonic Wind Tunnel (AF1300/AF1300s)

OPTIONAL MODULES

- DefleX® Camera Mount (AF1300DCS)
- DefleX®-3D
- Three-Component Balance (AF1300t)





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SPECIFICATIONS

TecQuipment is committed to a programme of continuous improvement; hence we reserve the right to alter the design and product specification without prior notice.

NET DIMENSIONS:

Small blade: length 35 mm, width 265 mm, depth 4.8 mm, weight 280g

Large blade: length 55 mm, width 245 mm, depth 7.15 mm, weight 340g

OPERATING CONDITIONS

OPERATING ENVIRONMENT:

Laboratory

STORAGE TEMPERATURE RANGE:

+5°C to +55°C (when packed for transport)

OPERATING TEMPERATURE RANGE:

+5°C to +40°C

OPERATING RELATIVE HUMIDITY RANGE:

80% at temperatures < 31°C decreasing linearly to

50%

at 40°C

SOUND LEVEL:

<70 dB(A)

*Images taken with the DefleX® software. The blades were placed inside the Subsonic Wind Tunnel (AF1300) mounted via the Three-Component Balance (AF1300t) and to capture the images DefleX®-3D and the DefleX® Camera Mount (AF1300DSC) was used making the deflection on the wing visible.

Top 2 images are the small blade and the bottom 2 are the large blade.

