

Tuf-Lite IV

with Tuf-Edge®

AHEAD OF THE CURVE



 **HUDSON**
Products Corporation

A Chart Industries Company



Engineered for Excellence. Inspired by You.

Representing the next generation of axial fan technology. Tuf-Lite IV[®] delivers superior efficiency, quieter operation, and unmatched versatility.

Tuf-Lite IV[®] Features:

- Optimized airfoil utilizing CFD
- Enhanced blade shape perfected with twist, taper, and sweep
- Backward sweep significantly reduces noise and vibration

Lower Blade Count

- Larger surface area compared to previous Tuf-Lite designs
- Higher blade to hub ratio, reducing the non-aerodynamic region

Erosion & Chemical Resistance

- Tuf-Edge[®] ceramic leading-edge protection
- UV-resistant pigmented resin and veil as standard

Tuf-Lite[®] Reliability

- Hybrid composite incorporates carbon fiber and fiberglass for maximized strength-to-weight ratio
- Rigorous static and dynamic structural testing
- Standard Hudson 36 month warranty

Engineered Solutions & Premier Customer Service

Tuf-Lite IV[®] is the only Carbon Fiber and Fiberglass Reinforced Plastic (FRP) blade proudly made in the USA. With over 65 years of composite fan manufacturing experience, we provide the quality and expertise you demand.

*Restrictions apply, refer to Hudson's standard T&C's.

Tuf-Lite IV® Now Available in 11ft - 36ft diameters



Tuf-Lite IV® Ultra High Temperature

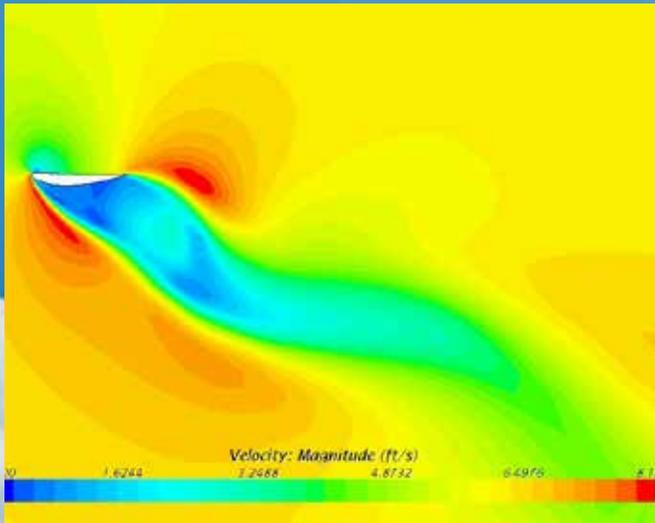


- Up to 350°F continuous & 400°F intermittent air temperature limits
- Ideal for induced draft air coolers and applications with radiant heat potential

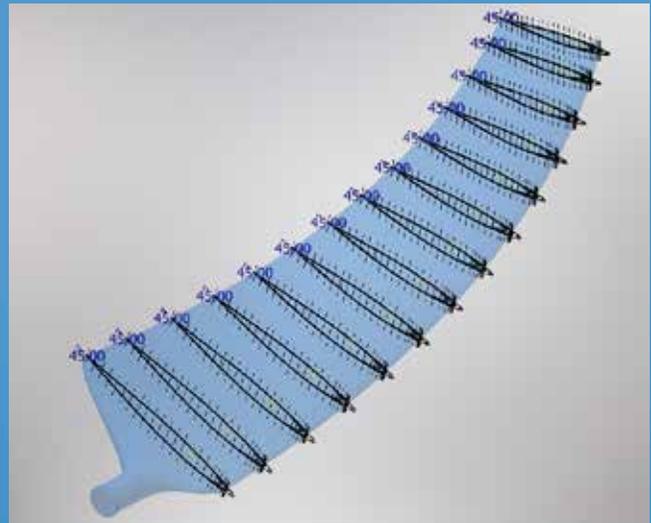
Continuous Innovation

Tuf-Lite IV[®] hybrid carbon fiber and fiberglass fan utilizes state-of-the-art CFD and FEA software in its design with wind tunnel validation at AMCA laboratory for the highest aerodynamic and structural reliability.

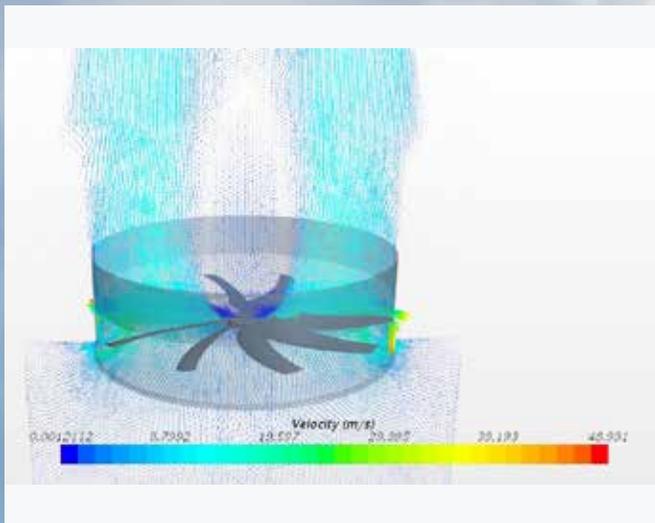
Extensive structural testing validates FEA analysis and ensures the reliability our customers have come to expect from Tuf-Lite.



CFD ANALYSIS



3D MODELING



3D CFD SIMULATION AND ANALYSIS FOR OPTIMIZED PERFORMANCE AND EFFICIENCY



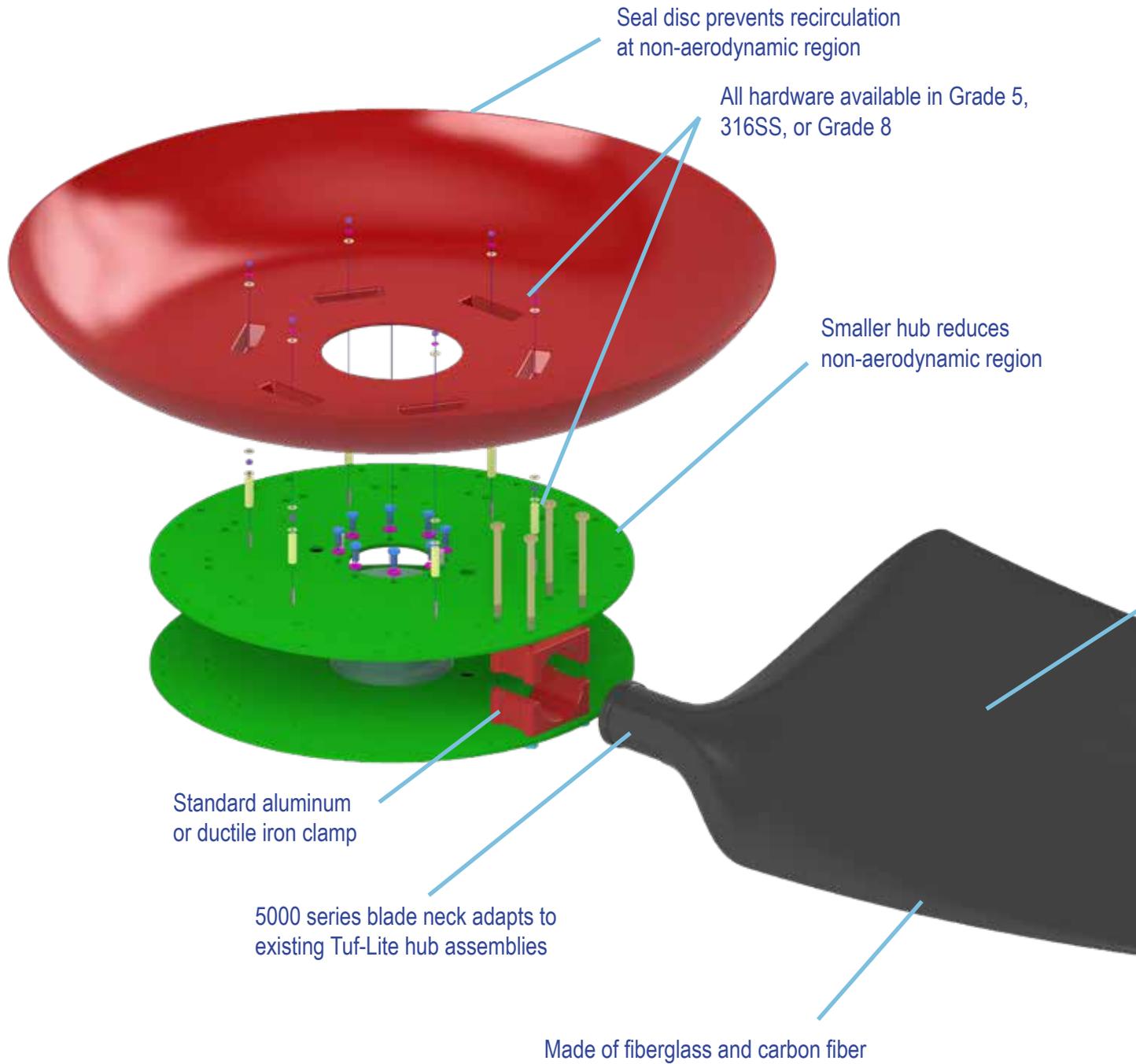
WIND TUNNEL TESTING FOR PERFORMANCE VALIDATION



Extensive testing at Hudson's Research and Development Facility results in state of the art fans you can rely on.

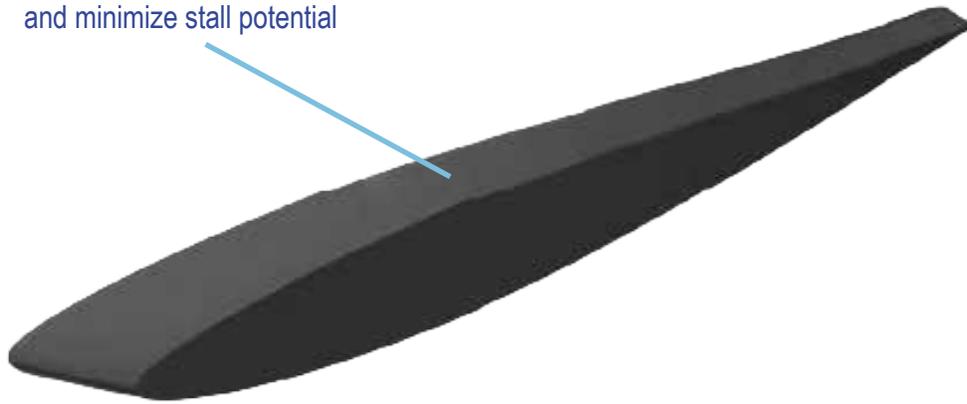
Tuf-Lite IV

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HUDSON

Optimal airfoil to maximize efficiency and minimize stall potential



Optimized twist, taper and sweep maximizes fan efficiency and reduces noise

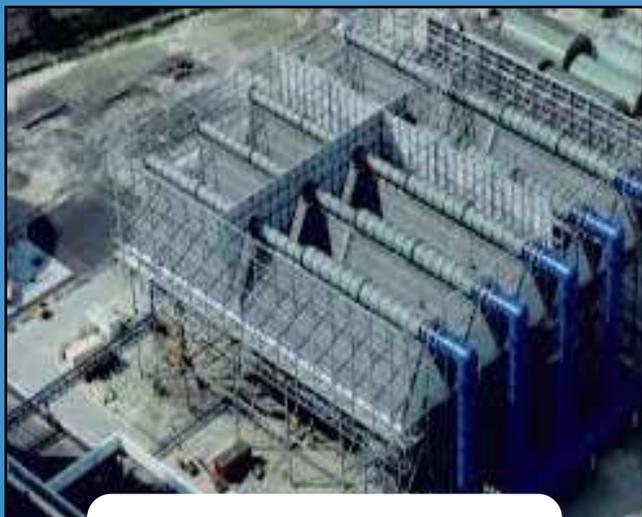
Wider chord and larger surface area improves fan performance

Fiberglass rope reinforces the trailing edge

Ceramic Tuf-Edge® enhances erosion resistance

Tuf-Lite IV®

Versatility Across Multiple Applications



Air Cooled Condensers



Cooling Towers



Air Coolers

Serving Established and Emergent Industries

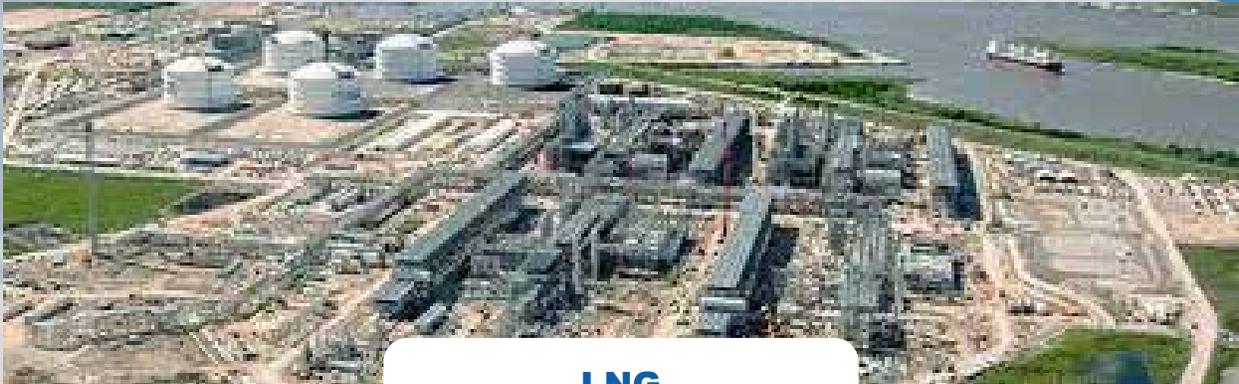
- Power Generation
- Oil and Gas
- Petroleum Refining
- Data Centers
- Direct Carbon Capture



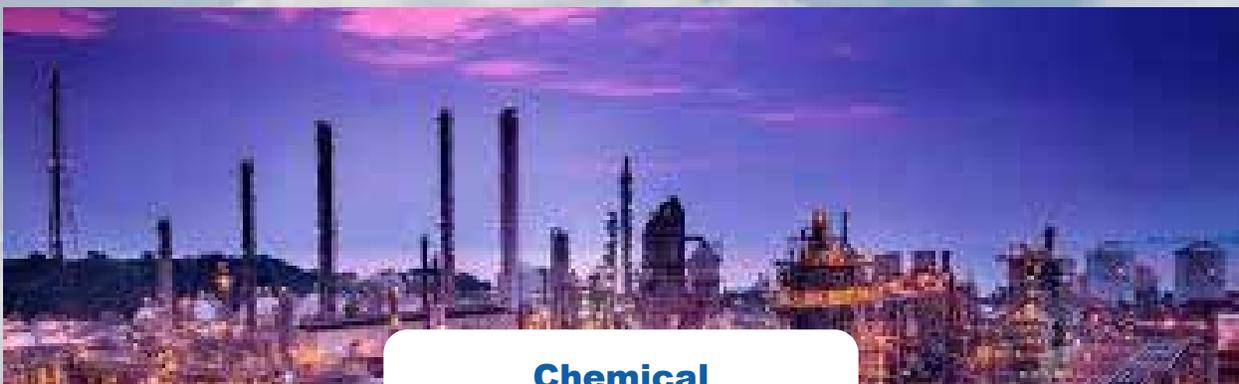
Refining



Data Centers



LNG



Chemical

Upgrade to Tuf-Lite IV®

Tuf-Lite IV
with Tuf-Edge®



Tuf-Lite IV®



OEM

Aftermarket Retrofit

Improve Cooling Performance of Existing Units by Retrofitting with Tuf-Lite IV®

Reliability

- 4-5X longer operational life compared to OEM Fans
- 25-30 years of UV life

Aerodynamic Performance

- Improved aerodynamic efficiency by up to 20%
- Increase airflow by up to 40%
- For air-cooled heat exchangers, up to 26% thermal duty improvement without changing motor capacity
- For LNG, up to 3% additional LNG production by debottlenecking condenser performance
- For Cooling towers, up to 2.5°C reduction of outlet water temperature

Noise and Vibration

- 3dB(A) reduction of noise for the same performance
- Reduce blade pass frequency vibration by up to 60%

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