



Scho & Müller

Bionik Engineering and Sustainability

NEXT GENERATION TECHNOLOGY

DEEP TECH · BIOMIMICRY ENGINEERING

Nature's 3.8 Billion Years of R&D, *Now Applied to Fluid Mechanics.*

Scho & Müller GmbH translates biological principles
into scalable Deep Tech innovations.

Founded 2025 · Frankfurt Region, Germany

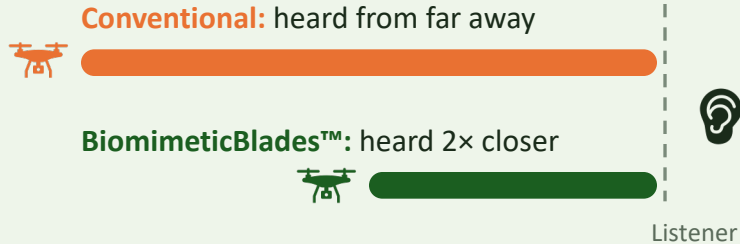
Loud propellers give drones away and drain their batteries

BiomimeticBlades™: 2× closer unheard, further on the same battery

PHASE 1 · PROVEN

NOISE · ACOUSTIC FOOTPRINT

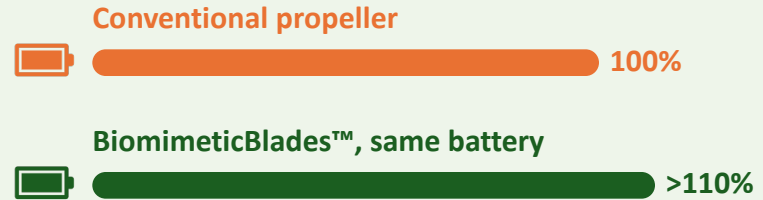
Conventional propellers are **heard from far away**, long before the drone arrives.



2× Phase 1, measured today
closer approach before being heard

RANGE · ENERGY

Inefficient blades **waste battery energy** and cut flight time and range.



>10% Phase 1, measured today
further on the same battery capacity

Biomimicry: Where biology meets engineering

BIOMIMICRY ENGINEERING

Abstraction & application
of **biological** principles to
develop cutting-edge
technology.

VDI 6220 · DIN EN ISO 18458

1

Observe

Analyze biological systems and decode their functional principles.

2

Abstract

Abstract the identified functional principle and model it independently of the biological model.

3

Transfer

Translate the principles into higher-performing industrial solutions.

→ Technology as efficient as nature, built for industry.

Our expertise: 1 million flow structures from nature

Already used to optimize different industry products, **now transferred to propellers**

WHAT WE HAVE



1 million

natural role models & flow structures

Analyzed in plants, marine organisms and flying animals



WHAT WE HAVE DONE



Proven

as an optimization service

Customer products made more efficient and quieter with our data



WHAT WE DO NOW



Now

BiomimeticBlades™

The same know-how, applied to UAV propellers

BiomimeticBlades™: 5 dB(A) quieter today, up to 15 dB as goal

Inspired by **birds, plants** and **underwater life**

PLUG & PLAY

TRL 6



Schematic owl-wing representation illustrating the biomimicry principle. Not the final rotor-blade geometry.

MEASURED NOISE & EFFICIENCY

Phase 1: 5 dB(A) quieter, >10% less current at equal thrust

TARGETS

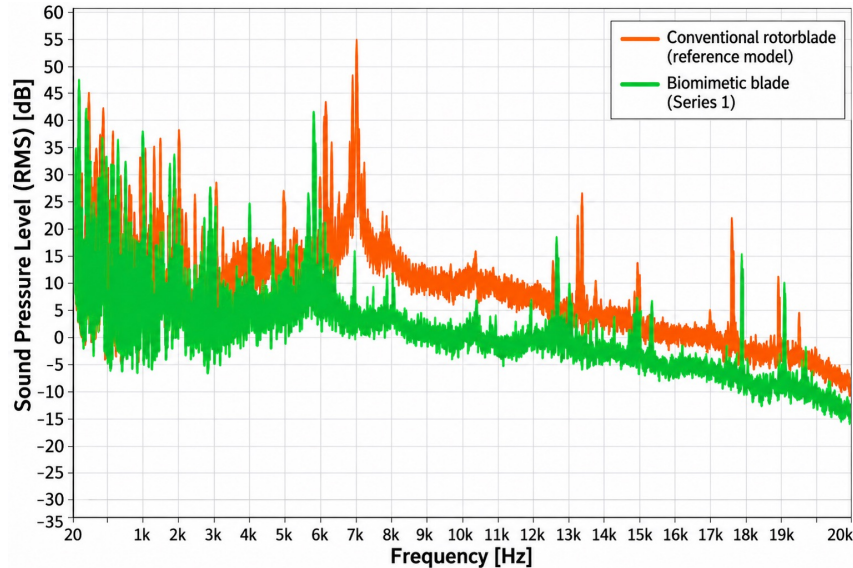
Phase 2: 10–12 dB quieter, >20% efficiency gain
Goal: 12–15 dB quieter, >30% efficiency gain

APPLICATION

Plug-and-play UAV propellers
Dual-use for civil and defence

Measured: our blades are quieter across the full frequency range

Inspired by birds, plants and underwater life



Source: Scho & Müller GmbH. (2026, September). *BiomimeticBlades™* for ultra-low-noise and energy-efficient UAV propulsion [Brief report].

MEASURED · PHASE 1

5 dB(A) quieter, >10% less current at equal thrust

TARGETS

Phase 2: 10–12 dB quieter, >20% efficiency

Goal: 12–15 dB quieter, >30% efficiency

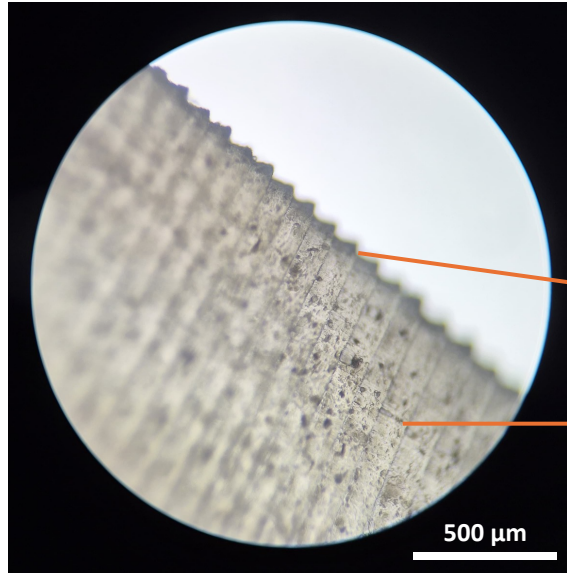
VALIDATION

Hundreds of prototypes tested

DIN EN ISO 3744-based measurements

Fine blade structures cut noise and raise efficiency

Our precision manufacturing at microscope scale



Light-microscope image of a blade edge, 100× magnification.

Micro-serrated edge

Fine surface texture

MANUFACTURING PRECISION

We can produce structures at microscope scale, visible only under magnification.

PROTOTYPES · MATERIAL

Methacrylate photopolymer, **SLA production** for rapid prototyping (**100 units/day**).

SERIES PRODUCTION

Scalable to **injection moulding** or **fibre composites**.

One Reynolds-based design scales to every size and industry

Designed for **flow regimes**, not for one propeller

DUAL USE · CIVIL & DEFENCE

THE PRINCIPLE

$$Re = \rho \cdot v \cdot L / \mu$$

Our structures are designed for **Reynolds-number ranges**, not for one geometry.

Same Reynolds range, **same flow behaviour**: the effect transfers to any size and medium.

Air or water, small or large: one design principle.



UAV

All propeller sizes

From micro drones to large cargo UAVs, civil and defence



UAV

All UAV types

Multicopter, fixed-wing and VTOL



BEYOND UAV

Marine propellers

Ships, boats and underwater vehicles



BEYOND UAV

Ventilation

Fans for heat pumps, HVAC and cooling

Field tests: how people and detectors hear our blades

From lab results to real-world operation

HUMAN PERCEPTION



BiomimeticBlades™



Listener

How do people perceive the **changed, lower frequency ranges**?

DRONE DETECTION



BiomimeticBlades™



Detection system

How do the new frequencies affect **drone detection and counter-UAS systems**?

LET'S CONNECT.

Nature's blueprints. Industrial impact. Scalable IP.



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