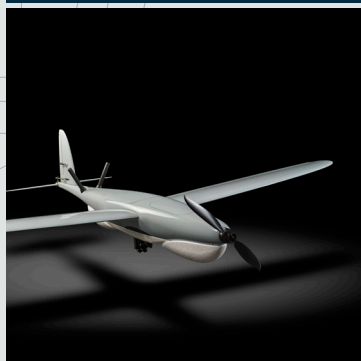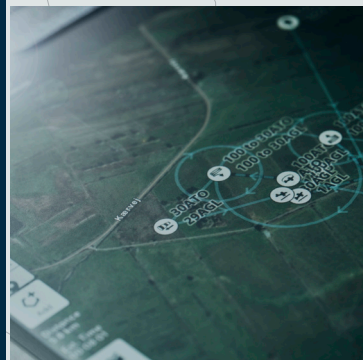# LAND AS YOU PLEASE.
# THE TACTICAL BRILLIANCE
OF A DEEP STALL UAS

As UAS technology continues to evolve, so does the need for smarter, more resilient landing techniques. While VTOL (Vertical Take-Off and Landing) systems have gained attention for their versatility, an alternative is proving to be efficient, reliable, and mission-ready: deep stall landings.

Used by battle-proven UAS like the RQ-35 Heidrun, deep stall landings offer a range of operational advantages. Particularly in military environments where infrastructure is minimal, and GPS (GNSS) access is unreliable or denied.
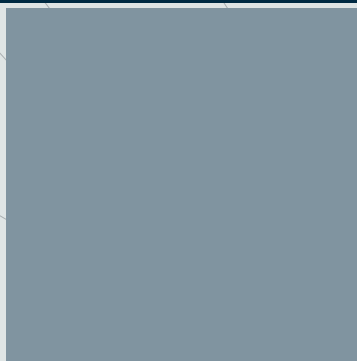
KNOW WHAT MATTERS
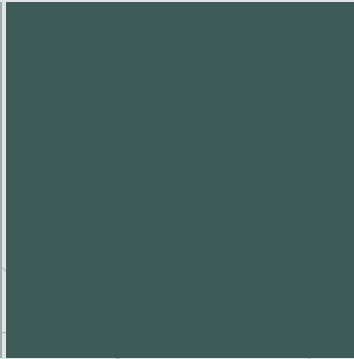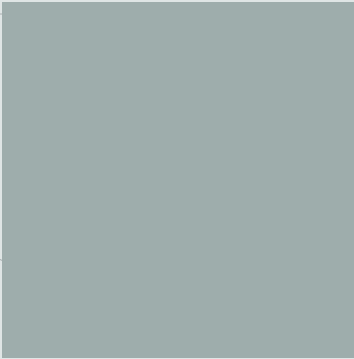
WHAT IS A DEEP STALL LANDING?

A deep stall landing is a controlled descent where a fixed-wing drone enters a steep, high-angle stall—typically between 65 and 80 degrees—causing the drone to descend sharply while remaining stable. Just before touchdown, the drone levels out briefly to ensure a safe landing with no damages. The maneuver requires only little space and no additional infrastructure, making it ideal for field operations.

5 KEY ADVANTAGES OF DEEP STALL LANDINGS

1. **Minimal landing area**
   Deep stall landings require significantly less space than belly-landing or landing with parachute, allowing the RQ-35 Heidrun to touch down in tight, rugged areas, in forest clearings, or improvised landing zones near the front line. Without compromising safety or precision.

2. **Better recovery**
   The steep descent angle minimizes exposure to ground threats, significantly improving the UAS' chances of a successful recovery in hostile territory. Unlike hovering VTOL drones, the UAS is less visible and spends less time during landing.

3. **Operational Versatility & Resilience**
   Deep stall enables safe landings on uneven terrain. Even places where GNSS signals may be unreliable and where other landing methodologies are impractical. No nets, cables, or pads required. Just land, pick up and re-launch. Is it windy? No problem. RQ-35 Heidrun is proven to handle take-offs in wind speeds up to 16 m/s (equivalent to a near-gale) ensuring reliable performance in conditions where others can't fly.

4. **Energy Efficiency**
   The RQ-35 Heidrun ensures energy-efficient launch and landing, avoiding the heavy power demands of VTOL systems. With a single drive train and endurance-optimized batteries, it maximizes flight time and range without compromising performance.

5. **Simplified Logistics**
   Deep stall eliminates the need for arrestor systems or nets, streamlining logistics, reducing deployment costs, and simplifying operations in locations without GNSS support.
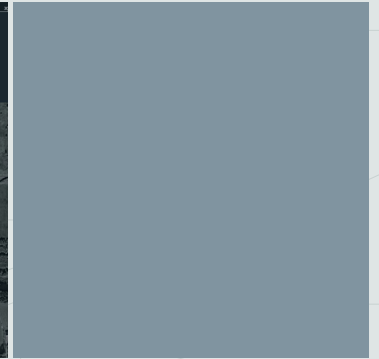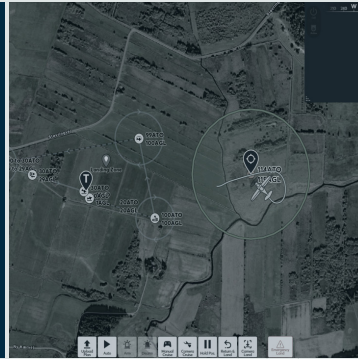
REAL-WORLD RELEVANCE: PROVEN PERFORMANCE IN UKRAINE

Several RQ-35 Heidrun drones have completed over 500 successful missions in Ukraine, demonstrating their effectiveness in real-world conflict zones. Thanks to the deep stall landings operators have been able to recover the drones in confined and unpredictable terrain—even when GNSS signals were jammed or denied.

In one scenario, the RQ-35 Heidrun was tasked with monitoring enemy movement in a hostile urban area. After completing its mission, the UAS executed a deep stall landing onto the rooftop of an abandoned building. Quietly and accurately minimizing exposure to enemy forces.

LOOKING FOR A TACTICAL ADVANTAGE?

When it comes to military readiness, stealth, and flexibility, deep stall landings offer clear advantages over VTOLs. If you have operations where space, time, or GNSS access is limited, deep stall isn't just an option - it's your edge.

Build a UAV for deep stall landings, and you build it for the soldier's reality - rough, relentless, and ready for the unexpected.

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