Nebkatum TAPROOT H6 Hybrid — Product Specification

Document: Product Specification for Website Product Page

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Prepared for: Nebkatum (tagline: "Rooted in nature, driven by technology")

Status: Target specifications (pre-validation)

1. Instructions for the Page-Building AI

Use this document to build a product page for the Nebkatum TAPROOT H6 Hybrid on the Nebkatum website. Follow these rules:

- Use Sections 2 to 13 as the page content. Section 14 is document control and must not appear on the page.
- Never mention, name or compare against any other manufacturer or product.
- Show metric units first, with imperial units in brackets.
- Keep every number exactly as given. Do not round further, invent new figures or upgrade claims.
- Show the footnote from Section 13 under the specification table.
- Main call to action: "Request a Quote". Secondary call to action: "Download Datasheet".
- Tone: confident, technical and plain. Audience: survey companies, mining and exploration, infrastructure inspection, agriculture service providers, public safety and research institutes.
- Brand: Nebkatum logo (teal "N" with gold leaves, roots and circuit traces). Suggested colours: deep teal as primary, warm gold as accent, off-white background.
- Suggested page structure: hero, key figures strip, overview, how the hybrid system works, payload vs endurance table, full specification table, applications, optional modules, what's in the box, support, call to action.

2. Product Identity

Item	Value
Product name	Nebkatum TAPROOT H6 Hybrid
Short name	TAPROOT H6
Product category	Heavy-lift, long-endurance hybrid multirotor UAV
Propulsion type	Series hybrid gasoline-electric (onboard generator powers electric motors)
Airframe	Foldable hexacopter (6 rotors)
Tagline (suggested)	Hours in the air. Kilograms on board.
One-line description	A foldable hybrid hexacopter that turns gasoline into electricity in flight, giving over 3 hours of endurance and up to 6 kg of payload without battery swaps.

3. Key Figures (for the hero strip)

Figure	Value
Max endurance (no payload)	Up to 3 h 15 min
Max payload	6 kg (13.2 lb)
Endurance with 5 kg payload	1 h 30 min
Max range (no payload)	Up to 125 km (78 mi)

Figure	Value
Onboard generator	3.5 kW continuous
Refuel time	Under 5 minutes

4. Product Overview

Battery multirotors are limited to 20–40 minutes of flight, so long missions mean carrying many batteries, chargers and generators to the field. The TAPROOT H6 Hybrid solves this with an onboard fuel-injected gasoline generator that produces electricity in flight and drives six high-efficiency brushless motors.

The result is multi-hour flight with professional payloads, refuelling in minutes from a standard fuel can, and stable performance in hot or cold climates where batteries struggle. A built-in backup battery allows a controlled landing if the engine ever stops, and the hexacopter layout gives additional safety margin compared with a quadcopter.

5. How the Hybrid System Works

- A two-stroke, single-cylinder engine with electronic fuel injection (EFI) drives a brushless generator.
- The generator supplies a regulated 48 V DC bus that powers the six motors, the avionics and the payload.
- A compact LiPo battery pack covers short power peaks (take-off, fast climb) and acts as an emergency backup.
- The engine starts electrically at the push of a button and can be restarted in flight.
- Fuel level, fuel flow, engine RPM, cylinder head temperature and generator output are shown live in the ground control software.

6. Payload vs Endurance

Payload	Typical endurance (hover / slow cruise)
0 kg	3 h 15 min
2 kg (4.4 lb)	2 h 30 min
4 kg (8.8 lb)	1 h 50 min
5 kg (11 lb)	1 h 30 min
6 kg (13.2 lb)	1 h 15 min

Conditions: full 8 L fuel tank, sea level, 20 °C, no wind. See footnote in Section 13.

7. Full Technical Specifications

7.1 Airframe and Dimensions

Parameter	Value
Configuration	Hexacopter, foldable arms and landing gear
Frame material	Carbon fibre composite with aluminium fittings
Diagonal wheelbase (motor to motor)	1,780 mm (70 in)
Overall size, flight-ready (incl. propellers)	approx. 2,590 × 2,590 × 700 mm (102 × 102 × 27.6 in)
Folded size	approx. 820 × 820 × 700 mm (32.3 × 32.3 × 27.6 in)
Propellers	32 in carbon fibre, folding
Motors	6 × brushless outrunner, low-KV

Parameter	Value
Ingress protection	IP43

7.2 Weights

Parameter	Value
Empty weight (incl. backup battery, no fuel, no payload)	20 kg (44.1 lb)
Fuel capacity	8 L (2.1 US gal), approx. 5.9 kg
Max payload	6 kg (13.2 lb)
Max take-off weight (MTOW)	32 kg (70.5 lb)

7.3 Flight Performance

Parameter	Value
Max endurance (no payload)	Up to 3 h 15 min
Endurance with 5 kg payload	1 h 30 min
Endurance with max payload (6 kg)	1 h 15 min
Max range (no payload, cruise)	Up to 125 km (78 mi)
Range with 5 kg payload	Up to 55 km (34 mi)
Max horizontal speed	15 m/s (54 km/h, 33.6 mph)
Recommended cruise speed	11 m/s (40 km/h, 24.6 mph)
Max ascent speed	2.5 m/s
Max descent speed	2.0 m/s
Max wind resistance	10 m/s sustained, 12 m/s gusts
Service ceiling	3,000 m AMSL (9,840 ft)
Operating temperature	−10 °C to +45 °C (14 °F to 113 °F)
Hover accuracy (RTK)	±0.1 m horizontal, ±0.1 m vertical
Hover accuracy (standard GNSS)	±1.0 m horizontal, ±0.5 m vertical

7.4 Hybrid Power System

Parameter	Value
Engine type	2-stroke, single cylinder, EFI, air-cooled
Generator continuous output	3.5 kW
Generator peak output	4.0 kW
DC bus voltage	48 V nominal (12S)
Starting	Electric, one-button; in-flight restart supported
Fuel	Unleaded gasoline RON 95 mixed with 2-stroke oil, 40:1
Specific fuel consumption	approx. 790 g/kWh
Typical fuel flow	2.5 L/h (light) to 3.4 L/h (at MTOW)
Backup battery	2 × 6S LiPo, 5,000 mAh (12S in series)
Backup flight time (engine off)	approx. 4 minutes for controlled return or landing
Noise level	approx. 80 dBA at 10 m

Parameter	Value
Engine service interval	50 flight hours

7.5 Avionics, Navigation and Control

Parameter	Value
Flight controller	Industrial autopilot with triple-redundant IMU (ArduPilot / PX4 compatible)
Positioning	Dual GNSS (GPS, GLONASS, Galileo, BeiDou), RTK optional
Heading	Dual-antenna GNSS heading (no compass calibration needed)
Flight modes	Manual, position hold, waypoint mission, terrain following, auto take-off and landing, return-to-home
Failsafes	Low fuel, engine stop, low battery, link loss, geofence
Ground control	Handheld ground station with integrated HD display and mission planning software
Command and video link range	Up to 15 km (9.3 mi) line of sight
Video downlink	1080p HD, encrypted
Telemetry	Live fuel level and flow, engine RPM, cylinder head temperature, generator output, battery state

7.6 Payload Interface

Parameter	Value
Mounting	Dampened quick-release payload rail, under-body
Payload power	12 V, 24 V and 48 V DC outputs
Payload power budget	200 W continuous
Data interfaces	Ethernet, UART, CAN, PWM
Payload control	From the ground station via autopilot

8. Applications

- Mapping, surveying and LiDAR corridor scans
- Magnetometer and geophysical surveys for mining and mineral exploration
- Inspection of power lines, pipelines, railways and other long linear assets
- Agricultural spot spraying and crop monitoring with the optional spray kit
- Search and rescue and public safety overwatch
- Light cargo delivery to remote sites
- Environmental monitoring, gas sensing and research

9. Optional Modules

- EO/IR stabilised gimbal camera
- LiDAR mounting kit
- Towed magnetometer suspension kit
- Spot-spraying kit, 4 L tank with pump and nozzles
- Payload release and winch module (up to 5 kg)
- RTK base station
- Extended-range datalink
- Spare engine service kit

10. What's in the Box

- 1 × TAPROOT H6 Hybrid airframe, factory assembled and flight tested
- 1 × hybrid generator system with 8 L fuel tank
- 2 × 6S 5,000 mAh backup batteries and 1 × smart charger
- 1 × handheld ground control station
- 1 × FPV camera
- 1 × set of spare propellers
- 1 × fuel mixing bottle and engine tool kit
- 1 × rugged wheeled transport case
- User manual and quick-start guide

11. Safety and Reliability Features

- Hexacopter layout for added redundancy
- Backup battery for controlled landing if the engine stops
- Automatic return-to-home on low fuel, low battery or link loss
- Live engine health monitoring with alerts
- Geofencing and altitude limits

12. Service and Support

- Operator training available (online or on site)
- Technical support by email and video call
- Spare parts and engine service kits available
- Warranty: 12 months (engine and generator: 6 months or 50 flight hours, whichever comes first)
- Price: on request ("Request a Quote")

13. Footnote (show under the specification table)

Specifications are target values measured at sea level, 20 °C, with no wind and a full fuel tank. Actual performance varies with payload, altitude, temperature, wind and flight profile. Specifications are subject to change without notice. Operation must comply with local aviation regulations; at 32 kg MTOW the aircraft may require special authorisation in some countries (for example, above 25 kg in the EU or 55 lb in the USA).

14. Revision History

Revision	Date	Description
REV0.00	2026-11-08	First issue
REV0.01	2026-11-08	Removed internal reference section