

# Technical Details

## HYPERLAUNCH (HL-170)



### Hardware

<b>Drone Type</b>	Biplane Tailsitter
<b>Dimension (mm)</b>	1700 x 1000 x 900 (with payload bay)
<b>Max Take-off weight (kg)</b>	24.9
<b>Max Payload Weight (kg)</b>	5
<b>Batteries</b>	Lithium Polymer / 45.6 V / 22 Ah x 2 (Dual redundant power source)
<b>Sensors</b>	Triple Redundant IMU Dual Redundant RTK GPS Dual Redundant Airspeed LiDAR Altimeter *Vision System (yet to be fully operational)
<b>Radio/Telemetry/Video</b>	2.4 Ghz 3-in-1 Mesh System (telemetry, RC and video)
<b>Ground Control Software</b>	F-drones GCS (windows based)

### Range

	5 kg Payload	0 kg Payload
<b>Maximum Range</b>	50 km	55 km
<b>Maximum Endurance</b>	36 mins	40 mins

### Payload Bay

<b>Open/Close Mechanism</b>	Manual
<b>Inner Dimensions (cm)</b>	40 cm x 40 cm x 25 cm

Operation (in AUTO modes)	VTOL Mode	Fixed-Wing Mode
Cruise Speed (m/s)	5	24
Minimum Speed (m/s)	0	18
Maximum Speed (m/s)	10	40
Climb / Descent Speed (m/s)	2.5	2.5
Maximum Wind Resistance (m/s)	10	14
Maximum Flight Time (min)	15	40
Maximum Altitude (m)	1500m	2500m
Autonomous Landing Accuracy (using vision system) (m)	0.2	-
Autonomous Landing Accuracy (using GPS) (m)	3	-
Flight Modes	Auto/Hover	
Operating Temperature	0 deg to 55 deg Celsius	
Weather	No operation during icing, rain or thunderstorms	

### Redundancies

- 3 x IMUs
- 2 x GPS
- 2 x Airspeed
- 2 x Power sources
- Magnetic field independent heading estimation
- Can withstand up to 2 motor failures

### Assembly

Assembly time (min)	5 min
Transport cases	Wings: 185cm x 60cm x 40cm Payload bay & Pylons: 65cm x 62cm x 54cm (Additional case for batteries and spares)

### Propulsion System

Motors	Brushless DC
Propellers	16-inch carbon polymer