

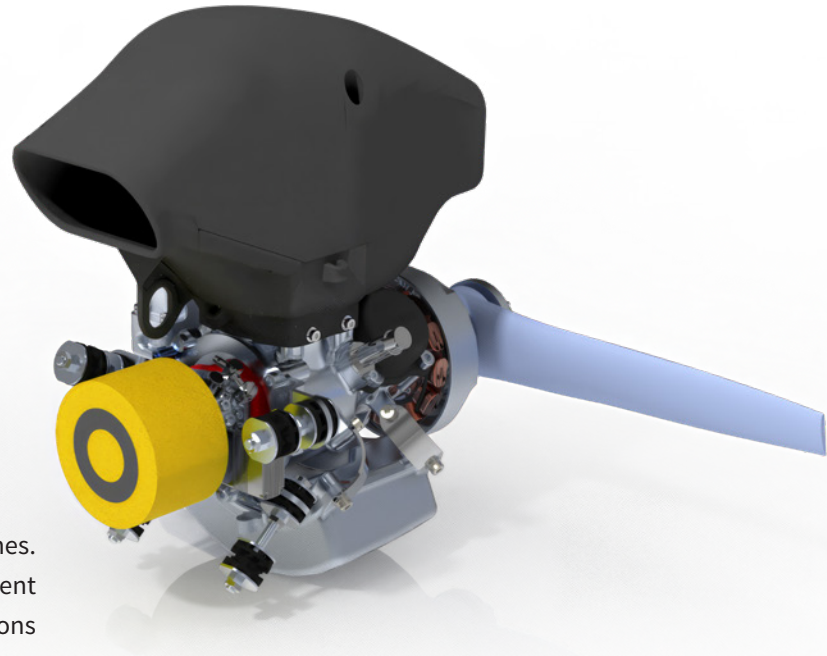
50HFE

HEAVY FUEL ENGINE

Small Form Serious Uptime

**50cc Single-Cylinder FlexDI™ Fully Integrated HFE
Propulsion System for UAVs**

3.6 hp and ~340 g/kWh cruise efficiency for small airframes.
Proven with 250,000+ hours, plus Engine Management
System driven in/post-flight diagnostics to keep missions
on schedule.



Plug-and-fly integration, faster to flight

Compact form, direct
coupling and integrated
Engine Management
System mean faster install,
cleaner wiring and lower
integration risk.



Any fuel, any altitude no re-tune

Seamless ops across
fuels and altitudes - no
downtime for re-tuning.



Longer missions or more payload

More endurance or more
payload from every litre.



Low signature, high uptime.

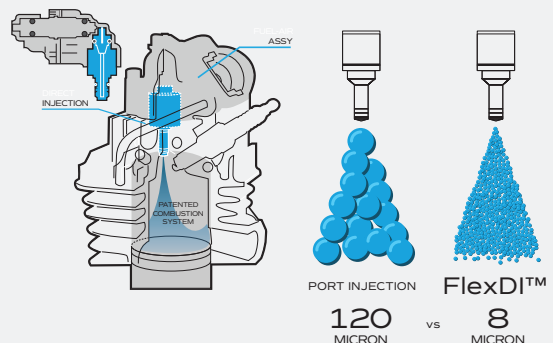
Lower acoustic and thermal
signatures, higher data
quality, less fatigue on
airframes, no pre-heating
required for cold start.

FlexDI™ Fuel Injection

8-micron precision, mission-level efficiency

Orbital's FlexDI™ atomises fuel to ~8 µm droplets (vs ~120 µm conventional), delivering a cleaner, more complete burn. The result is >30% lower cruise fuel use, high specific power (>70 kW/L), and assured starts in -30 °C conditions with automatic altitude compensation to high density altitudes.

FlexDI™ runs JP-5/JP-8/Jet A/Jet A-1 or gasoline with no calibration change, meets MIL-STD-1474D noise targets, and uses electronic oil metering for consistent lubrication.



**FlexDI™ turns advanced combustion control
into tangible mission advantage.**

contact@orbitalcorp.com.au | www.orbitaluav.com

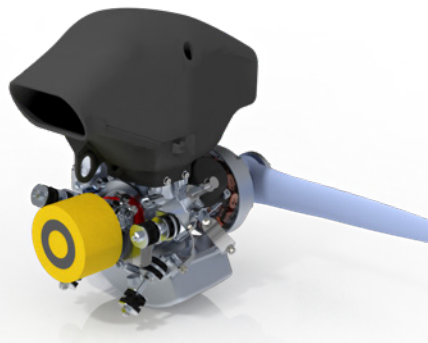
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50HFE

Single-Cylinder FlexDI™ Fully Integrated HFE Propulsion System for UAVs



HEAT



COLD



DUST



WET

ENGINE SPECIFICATIONS

Engine Configuration	50cc, Air-cooled 2-stroke with Orbital Flex DI
Power	3.6hp (2.7Kw) @ 6,500rpm
Fuel Consumption (BSFC)	~340 g/kWh @ typical cruise
Fuel Compatibility	JP5, JP8, Jet A, Jet A1 (able to operate on gasoline)
Weight	~5.2kg Integrated Propulsion System (includes ECU, mount, pumps, harness, propeller)
Engine Management	Orbital FlexECU with CAN Communication
TBO	500 Hours

INTEGRATED PROPULSION SYSTEM

Thermal Management	Light weight aerodynamic cowls
Exhaust System	Light weight acoustic/power optimised
Vibration Isolation	Dynafoal tuned mounting system
Electrical Power	Configurable Engine Management System alternator (with remote-start capability)
Fuel and Oil System	Integrated pumps and lines with consumption monitoring
Propeller	Orbital OptiProp propeller simulation and selection

OPERATING ENVIRONMENT

Max. Operating Altitude	20,000' AMSL
Operating Temperature	-30 to 55 °C including start
IP Rating	MIL Spec. Sand, Dust, Rain, Salt Fog
Corrosion	Tropical Marine

Orbital helps UAV manufacturers outperform their competition by delivering integrated propulsion systems engineered specifically for maximum reliability, seamless integration, **and mission-critical performance.**



Image shows Insitu's ScanEagle3, courtesy and copyright of Insitu Inc.

1.2 Million hours of in-field service with multiple Tier 1 Defence customers - Orbital propulsion systems deliver the proven reliability and performance to make your UAV a market leader.

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