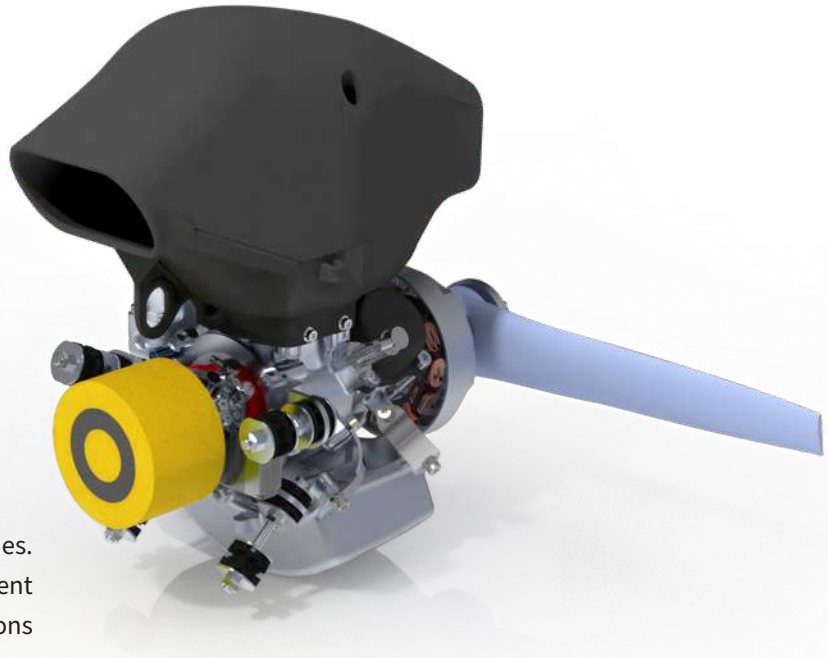
HFDI.50

HEAVY FUEL ENGINE



Small Form Serious Uptime

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.

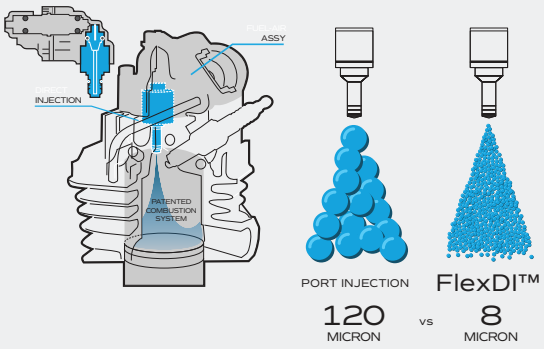
Lower acoustic and thermal signatures, higher data quality, less fatigue on airframes, no pre-heating required for cold start.

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**

orbitaluav @OrbitalCorpASX

ENGINEERED TO WIN ORBITAL®

HFDI.50

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 (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	Dynafocal 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.

ENGINEERED TO WIN ORBITAL®