Northwest UAV
A GLOBAL COMPANY

PROPULSION & PAYLOAD INTEGRATION SPECIALISTS

RCV ROTARY VALVE MULTI-FUEL UAV ENGINES

Rotary Valve Technology, multi-fuel engines. Designed specifically as a UAV engine, not a modified hobby engine.

- Four-Stroke Cycle for Low Emissions and Fuel Consumption
- Excellent Starting in a Temperature Range of -20°C To +40°C
- Turn-Key Heavy-Fuel Operation
- Switchable Fuel Type Capability Without the Need for Mechanical Intervention
- Offers High Reliability, Low Maintenance and Long MTBO
- Electronic Fuel Injection System with Altitude Compensation
- Dedicated Mounting System for 100 W to 3 kW Alternators

Where Precision and Reliability Soar!

From single components to entire propulsion systems – Our main focus is in engines, modular components and support solutions for any UAV or unmanned system.
RCV Rotary Valve Internal Combustion 4-Stroke Engines from 2.2 to 8.61kW for Small Unmanned Vehicles.

Single, twin or 4-cylinder, off-the-shelf or customized specifically for your unmanned system — configure the RCV engine for your application.

RCV Engines are designed for low emissions, low fuel consumption, and turn-key heavy-fuel operation. With their single-, twin-, and four-cylinder designs, these engines are easy to calibrate and provide consistent performance with RCV Engine’s unique combustion system. With no injectors in the combustion chamber to carbon up, no valve clearances to adjust, and shielded spark plugs, RCV engines have the high reliability and low maintenance that many midsize drone applications require. As the key features demonstrate, the RCV engine fits a variety of applications, including fixed-wing, rotary-wing, hybrid, marine and portable power.

• Four-stroke cycle for low emissions and fuel consumptions
• Excellent starting in a temperature range of -20°C to +40°C
• Compact combustion system that offers:
  ➢ Turn-key heavy-fuel operation
  ➢ Stable response to changes in AFR or ignition timing
  ➢ Insensitivity to changes in fuel quality or altitude
  ➢ Resistance to detonation and carbon build up
• Large valve breathing area gives high power with a wide power band
• Offers high reliability, low maintenance and long MTBO with
  ➢ No injectors in the combustion chamber to carbon up
  ➢ No valve clearances to adjust
  ➢ Shielded spark plug for minimum plug fouling and long life
• Electronic fuel injection system with altitude compensation
• Dedicated mounting system for 100 W to 3 kW alternators
• Available in air cooled and liquid cooled versions

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Standard Build</th>
<th>DF35</th>
<th>DF35LC</th>
<th>DF70</th>
<th>DF70LC</th>
<th>DF140LC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooling</td>
<td>Air Cooled</td>
<td>Liquid Cooled</td>
<td>Air Cooled</td>
<td>Liquid Cooled</td>
<td>Liquid Cooled</td>
</tr>
<tr>
<td>Type</td>
<td>35cc Single-Cylinder</td>
<td>70cc Twin-Cylinder</td>
<td>140cc Four-Cylinder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power (JP8)</td>
<td>2.2kW (3.0hp) @ 8500 rpm</td>
<td>4.2kW (5.7hp) @ 8500 rpm</td>
<td>8.61kW (11.5hp) @ 8800 rpm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight Complete*</td>
<td>2.0 Kg (4.4 lb)</td>
<td>(3.0 Kg (6.6 lb)</td>
<td>4.8 Kg (10.6 lb)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Combustion System
Revolving Valve, 4-Stroke

Fuel / Lubrication
Gasoline, Heavy-Fuels (Kerosene Based Including: JP5, JP8, Jet A-1) / Oil/Fuel Ratio (25:1)

Fueling
Low Pressure Manifold Injection with Altitude Compensation

Heavy-Fuel Starting
Cold Start Assisted with Installed Cartridge Headers

Fuel Consumption (JP8)
330 g/kW.hr (0.54 lb/hp.hr)

TBO
250 hrs (VTOL), 500 hrs (Fixed-Wing)

OPTIONS
Clockwise or Anti-clockwise (viewing the prop drive)

Rotation

Starting
Starter Generator

Cooling
Mechanical Fan / Cowlung / Electrical Fan
Custom Radiator Design
Mechanical Fan / Cowlung / Electrical Fan
Custom Radiator Design
Custom Radiator Design

*Weight includes engine assembly ready to run with fuel system, ECU, wiring and exhaust. Weight does not include prop, generator or cowling.