

E.F.I. SUPERCHARGER

Descrizione

- SUPERCHARGER Rotax 912 – 142HP
- Redundant Electronic Fuel Injection “Fly-Safe”
- Mechanical Fuel Pump 3Bar
- Intake Manifold Kit with big compensating pipe

Characteristic	Rotax 914	Rotax 915	Flygas-Rotax 912
Max Power (hp)	110hp @ 5800 RPM	141hp @ 5800 RPM	142hp @ 5800 RPM
Max Power (Kw)	81Kw	104Kw	104,4Kw
Displacement (cc)	1249cc	1352cc	1352cc
Weight (Kg)	71Kg	84Kg	72Kg



Advantages

- Best performance, even at high altitudes;
- Better fault-tolerance, for greater safety;
- More power with less weight, increased load capacity;
- Mechanical 3 Bar Fuel Pump ensuring fuel flow independently from 12v supply

- **“Fly-Safe” REDUNDANT Electronic Fuel Injection system**

The “Fly-Safe” Electronic Fuel Injection system by Flygas stands as a parallel unit to the Carburetors. At any time, the pilot can rapidly change from E.F.I. back to Carburetors and vice versa simply pushing or pulling the Flygas “K.E.D.” (Knob Exchange Device) on the cockpit.

In case of any malfunction with the E.F.I. the pilot can quickly change back to Carburetors, restoring engine operation and restarting it in two second!

This is also particularly useful in any unlikely case of emergency landing.

In order to reduce the risk of fire due to a heavy ground impact, you can discharge the high-level fuel pressure (3 bar -45 psi) of the E.F.I. to the low-level fuel pressure (0.3 bar – 4.5 psi) of Carburetors.

- **“Fly-Safe” (with “big compensation pipe”) ADVANTAGES:**

1. No ice forming in the intake manifold.
2. Lower fuel consumption.
3. The stoichiometric ratio will always be the best for the current atmospheric condition.
4. The stoichiometric ratio will be automatically adjusted, according to altitude.
5. Absence of vibration, regardless to the difference in the opening of carburetors.

6. Possibility to continue flying (at 50% of power) even if the wire command of a carburetor breaks. You could even fly with a carburetor completely disconnected from the collector (e.g. in case of breakage of the rubber fitting).
7. Independent and optimized carburation for each cylinder (currently, especially in supercharged engines, carburetion is optimized only for the thinnest cylinder.).
8. Prevention of detonation that can always happen in a supercharged engine whenever the stoichiometric ratio turns low.
9. Optional “dialogue” dashboard displaying the engine data that can also record them. For further diagnosis, the pilot or the maintenance engineer can remotely send the latest flight data (e.g. before a long journey) to Flygas for evaluation and control – OPTIONAL REMOTE CONTROL SERVICE.
10. Integration of all the electrical switches (electric pumps, 12-volt control unit, and starter motor) into a single command (the K.E.D.) so that you can activate them simultaneously and quickly.

- **Centrifugal Supercharger with mechanical drive ADVANTAGES:**

1. Exhaust Temperature very low compared to turbo engines.
2. No high backpressure in manifold exhaust.
3. No electronics “TCU” to control boost.
4. Supercharger’s oil plant completely separated from engine’s oil plant (optional).
5. Low weight installed.
6. Increased rotational inertial mass, which allows the engine to run smooth, as if it had a large flywheel.
7. Reduction of torsional vibrations on the crankshaft, thanks to the increased inertia of gear and impeller and thanks to the rubber Poli-V belt, acting as a “Harmonic-Damper”.
8. No risk of turbine over-speed, because the compressor-shaft is driven directly by the engine, with a pulley and belt system, and not by exhaust gas flow.

- **Mechanical fuel pump (primary) + Electrical (secondary) ADVANTAGES:**

Flygas Mechanical Fuel Pump is driven directly from the crank-shaft and is installed on the engine flywheel, in a protected position in the event of an emergency landing. It ensures a constant fuel flow at 3 bar pressure, while having a very light weight (only 680 grams: just basically the same weight as an electrical Pierburg fuel pump, complete with wires and switches.) It replaces one of the two electric fuel pumps normally installed on a Rotax 912 and is configured as the “primary” fuel pump, leaving the residual electric pump as “secondary”.

- Remember: all aircraft and racing engines have always been equipped with mechanical fuel pumps, and they still are today!!
 1. Fuel flow no longer dependent on the 12-volt power supply.
 2. More reliability. The torque of our mechanical fuel pump is very high, so it will never stop even if there are traces of dirt in the fuel. In the case of highly polluted and dirty fuel (obviously to be avoided) the mechanical pump could still start to deteriorate, reducing its flow rate and maximum pressure, but without stopping. You must however keep in mind that our pump can carry more than 160 liters per hour and has been designed to supply up to 14 bar of pressure, while a Pierburg electric pump can carry only 100 lt / h. Therefore, our mechanical pump has a wider safety margin even in case of deterioration over time.
 3. Electrical power saving, which can thus be used for other services.
 4. Greater cleanliness of the fuel plant, with fewer switches and wires and fewer pipes passing through hot areas near the engine (risk of “vapour-lock”).
 5. Increased fire safety. If the engine stops, the fuel flow also stops. The pump is located in a protected area in the event of a crash: behind the flywheel.