

***FLYGAS***  
ENGINEERING

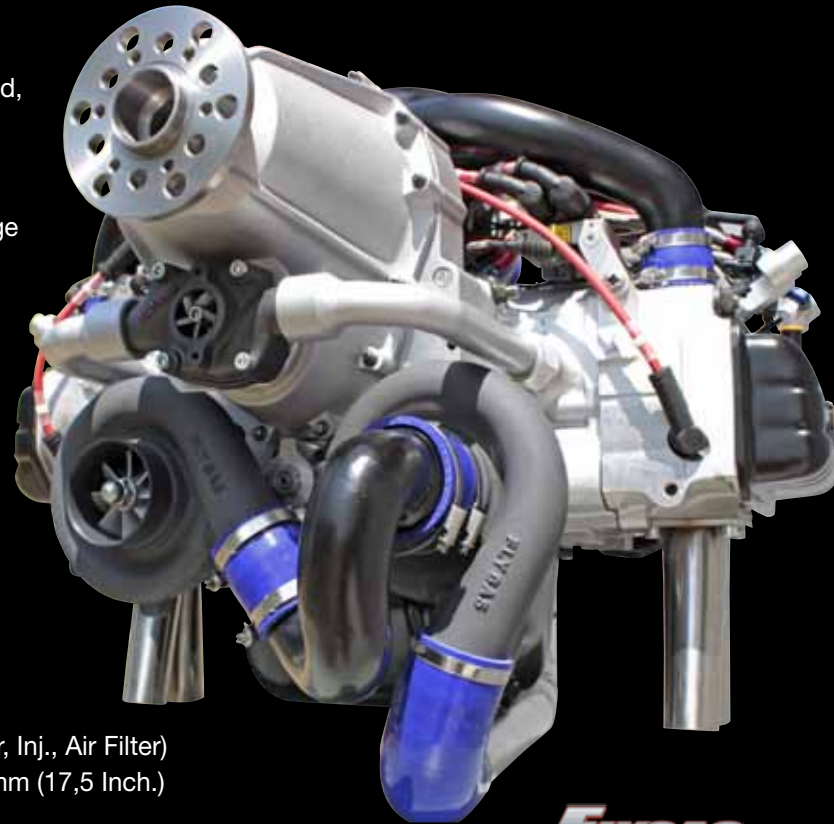


Designers and Engine Builders for U.A.V.

# GAS418HA Engine for U.A.V. - M.A.L.E.

## **TECHNICAL DATA Engine "GAS418HA"**

- Engine Model: "GAS418HA", 4stroke, Gasoline
- Displacement: 1.800 c.c. (110 c.inch.) – N°cyl. 4, Opposed, (2 valves per cyl.)
- Bore \ stroke: 92mm\ 68mm (3,6 inch. \2,7 inch.)
- Maximum power: 132Kw (180hp) @ 5.800 RPM
- Alimentation supply: Centrifugal Supercharger single stage mechanical gears driven
- Ignition: Double spark-plugs, (different options to control its)
- Cooling: Water, forced circulation
- Lubrication: Dry or wet sump
- Alternator: 14 vdc, 32 Amph (secondary alternator could be supply)
- Ignition / Injection: [Redundant E.F.I.] or [E.F.I. + Carburrators (Flygas Patented kit)]
- Starting: Electric engine starter with sprug-clutch
- Reduction Gear Propeller: Gearbox with shock absorber: [2.18: 1] - [2.20:1] - [2.33:1]
- Fuel type: Gasoline "Normal green"
- Power/weight ratio: 2.3 Hp/kg!!
- Weight: 78 Kg (172 Lb. included Starter Motor, Alternator, Inj., Air Filter)
- Overall Dimensions: width 664mm (26.Inch.), height 449mm (17,5 Inch.)
- Depth from the propeller flange: 584mm (23 Inch.)



**FLYGAS**

# GAS418HA 180HP Engine



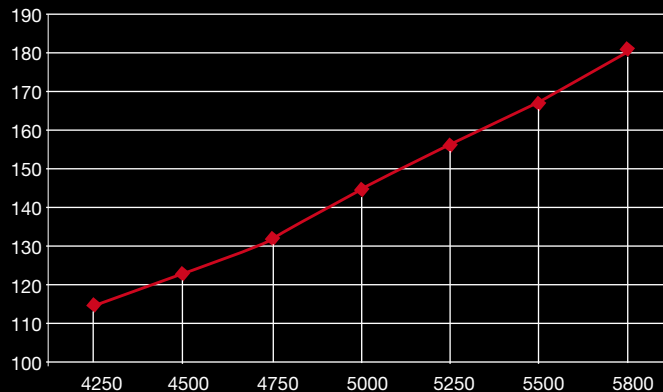
Cylinders 2-4 side

**FLYGAS**

**FLYGAS**



**Power GAS418HA by Flygas**



RPM	4250	4500	4750	5000	5250	5500	5800
HP	115	123	132	145	156	167	180

**Engines on the market and his characteristic:**

	Rotax 914	Lycoming O-320	Flygas GAS418HA
Power Hp @RPM	110hp @ 5800	160hp @ 2700	180hp @ 5800
Power Kw	81 Kw	118kw	132Kw
Capacity	1249cc	5125cc	1800cc
Weight	71 kg	126kg	82 kg
Power @ 65%	64Hp	98 Hp	105 Hp
Fuel cons. @ 65%power	18.3 Lt/h	30 Lt/h	29 Lt/hr
Max Power @ 11000Meters	60 Hp	120 Hp	160 Hp

# GAS418HA 180HP Engine



Cylinders 1-3 side

**FLYGAS**

# ROTAX912 POWERED By FLYGAS

## TECHNICAL DATA Engine

- Engine Model: “Rotax912ULS”, 4stroke, gasoline
- Maximum power: 110Kw (150hp) @ 5.800 RPM
- Maximum RPM: 5.800 for max 5min.
- Alimentation supply: Centrifugal Supercharger mechanical driven
- Ignition / Injection: Redundant E.F.I. or E.F.I. + Carburators for redundancy (Flygas Patented kit)
- Fuel type: Gasoline Normal green
- Power/weight ratio: 2.3 Hp/kg!!
- Fuel type: Gasoline Normal green
- Weight: 65 Kg ( 144Lb. included, Starter Motor, Alternator, injection, Tube, Air Filter)
- Overall Dimensions: width 580mm (23Inch.), height 400mm (16 Inch.)
- Depth from the propeller flange: 700mm ( 27.5Inch.)

## Advantages of Gas-Supercharger Kit on Rotax engines:

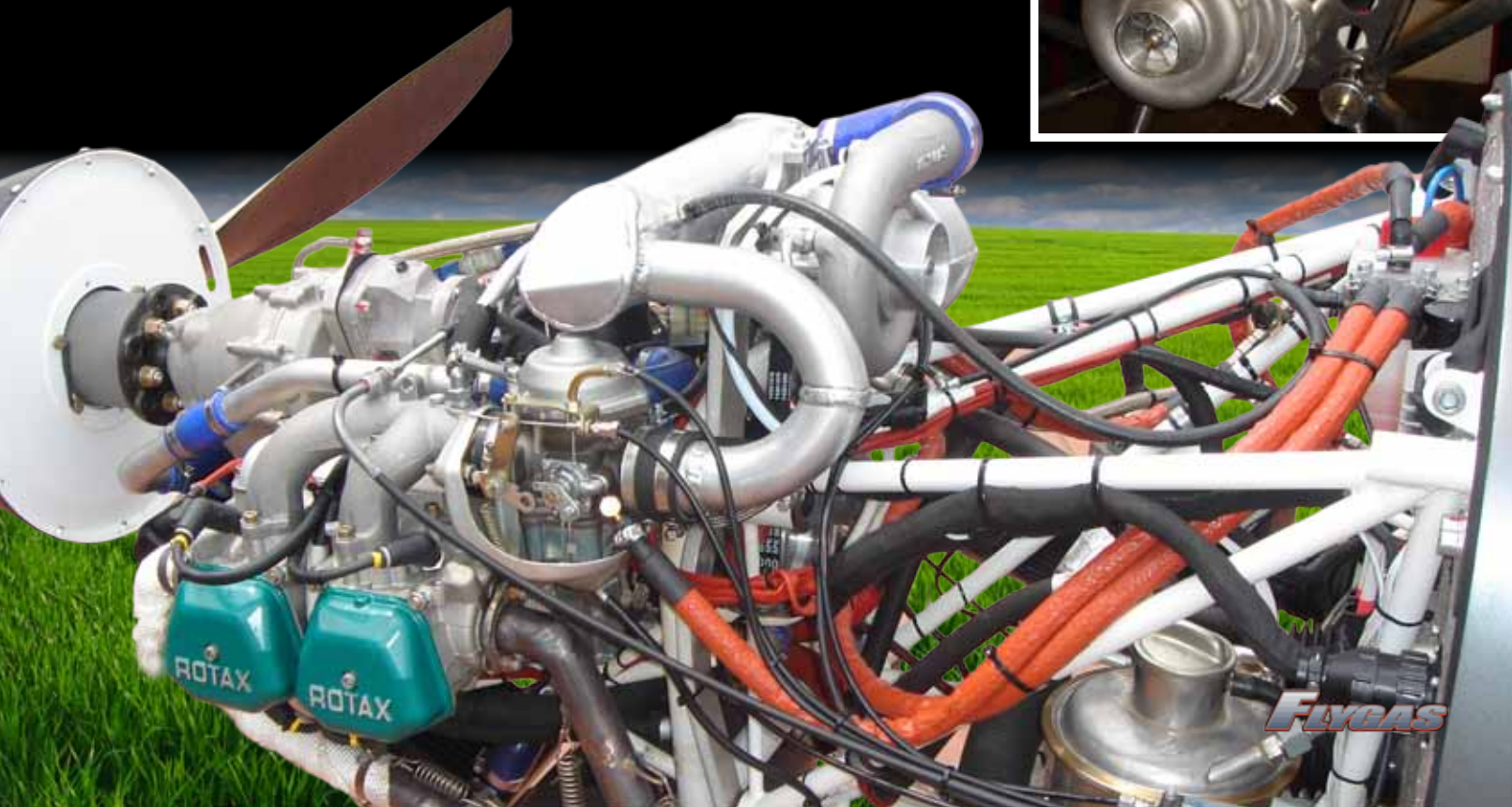
- Exhaust Temperature very low respect of turbo engines
- No high backpressure in manifold exhaust
- No electronics “TCU” who control boost
- Possibility install “Mechanical Blow-Off Valve”
- Oil plan of our supercharger, complete separated
- Low weight installed
- Reductions of torsional vibrations of cransckshaft, thanks at inertia of gear and impeller increased, and thanks at rubber poli-V belt who work like at “Damper”



**FLYGAS**



# ROTAX912 SUPERCHARGED 150 HP



*FLY GAS*

# REDUNDANT ELECTRONIC FUEL INJECTION FOR ROTAX 912-914

## **ADVANTAGES OF THE FLYGAS PATENTED SYSTEM:**

The electronic fuel injection system activated by the FLYGAS PATENTED KIT stands as a parallel unit to the carburetor.

1. For the first time you can have a double fuel injection system electronic fuel injection and carburetor, so will be possible to change in each time, from one system to the other
2. in any unlikely case of emergency landing you can exchange from electronic fuel injection to the carburetor system and by this simple operation you automatically discharge the high pressure of 3 bar (45 Psi) to the low pressure state as available in the carburetor, i.e. 0.3 Bar (4.5 Psi)
3. No ice forming in the intake manifold.
4. The Stoichiometric ratio will always be the best for the current atmospheric condition and altitude

5. Absence of vibration regardless of the difference in the opening of carburetor.
6. Possibility of continuing to fly (to 50% of power) even in the case of breakage of a wire command of a carburetor.
7. Equally used cylinders independently from each other. (Currently, especially in supercharged engines, you find the carburetion mostly happens in the thinner cylinder.)
8. Prevention of detonation that it is always possible in the supercharged engine whenever stoichiometric ratio became lean

\*Possibility to supply fully redundant E.F.I. without carburetors.

The logo for FLYGAS, featuring the word "FLYGAS" in a stylized, italicized font with a blue and red gradient and a white outline.



# REDUNDANT ELECTRONIC FUEL INJECTION FOR ROTAX 912-914



Injectors



Inlet Manifolds



Distributor valve for exchange  
E.F.I. to carburattors  
Knob, with mains multi switches

# SPECIAL INTERCOOLER for ROTAX 914 instead of original airbox

## MAIN FEATURES FOR ROTAX 914 TURBO

1. Increase and constant maintenance of the power due to the lower compressed air temperature at engine inlet;
2. Installed instead of the original Airbox, without waste space in the engine compartment
3. Reduction of the risk cutting power on Rotax 914. The lowest air temperatures in carburetors input coincides with an important reduction in the risk of intervention of the TCU control unit. This unit, over the 82 ° C air, open waste-gate valve and discharge boost pressure,

avoiding damage to the engine but losing most of the power supplied.

4. Better distribution of mass air to the engine with cylinder banks relative balance without the need to be fitted on the carburetors different main jets between them
5. Assembly "Aircooler" personalized according to your space and on yours overall limits



## SPECIAL VALVES FOR ALTITUDE M.A.P. COMPENSATION



**FLYGAS**

# LIGHT AND RELYABLE ALTERNATORS FOR ROTAX 912-914

## **SPECIFICATION**

Alternator reverse-phase, 3 wire inner rotor

Power: 180W \ 12V (also other model 300W and 350W,same installation without belt)

Rpm Max 12000 Rpm

## THE ADDITIONAL ALTERNATOR PROPOSED BY "ROTAX ":

- Heavy and roomy unit : approx 3 kg weigh
- Expensive kit
- Belt driving system
- Modifications required to allocate the additional alternator

## ADVANTAGE OF THE FLYGAS ALTERNATOR KIT:

- Light and lean: approx 1.5 kg weigh (half of Rotax kit!)
- Not expensive, fairly valued kit
- Without belt driving system but directly set on the engine shaft
- No modification required to allocate the additional alternator





**FLYGAS**

Via Luzzo N°4 Maddalena di C.

Cap 40054

Budrio, Bologna ITALY

Ph. /Fax +39 051 807202

[WWW.Flygas.info](http://WWW.Flygas.info)

[info@flygas.info](mailto:info@flygas.info)