



# GENERAL TECHNICAL DATA

## General information

The complete RS FALCON engine line was born from an absolute new and high-tech industrial project, realised in Italy by GRP, under the technological supervision of Mario ROSSI.

Thanks to the technological and futuristic research centre at GRP, the very first projects were realised, and it will allow a continuous future product development. Everything has been studied with the most up-to-date and advanced software of mechanical simulation, to know and reproduce the conditions of use and deformation of components and materials at high temperatures.

**All components** (*even the ones apparently less important*) have been meticulously studied and the result has confirmed a very high basic quality that will set a new worldwide standard quality in this field.

The look and packaging for mechanical components which are normally neglected, have been studied here in details to guarantee a truly complete product. Each single engine is delivered with protection cover for exhaust, intake fuel entrance and carburettor. It will come with a manual of use and maintenance and a spare parts catalogue on CD, written in two languages.

## CONSTRUCTION DETAILS

The functions of these model engines are quite different from other combustion engines.

Compression is not obtained by a piston ring, but by the fact that both the piston and cylinder are slightly conical and this allows the perfect closure of the combustion chamber when the piston is at its maximum upper stroke.

When the engine is cold, the piston is tightly locked within the cylinder and for this reason it is difficult to turn the engine manually, but this is absolutely normal since the ideal contact between piston and cylinder is obtained when both reach the normal temperature to operate the engine.

## APS - Abrasion Protection System

**APS** is an exclusive treatment studied after many tests that can be applied on different components such as rear cover etc. These pieces are wear resistant and they guarantee a reduction of loss of friction and therefore power.



## TCS - Temperature Control System

TCS is a technical concept for the separation of direct contact of carburettor body with crankshaft, to control the temperature of the carburettor itself. An insulating bush made with a very special mineral material interrupts the heating passage to the carburettor body, guaranteeing a better regulation of the carburettor functioning. In this way, the carburettor body can be made entirely with an aluminium alloy to guarantee maximum regularity at any temperature of use.

### CRANKSHAFT

It is designed with a special profile through which we can obtain the perfect balancing of the piece, without having to balance it up with some weights, which generally creates heterogeneous deformations at temperatures of use.



### CONROD

It is produced with a special advanced technological material, which has allowed the exclusion of a bushing on piston side. This gives a greater lightness, leading to a higher acceleration and rotational rate. Moreover, this material has a specific heat resistance at high temperatures of use guaranteeing minimal deformation.



### PISTON

It has a particular design and it is made directly from a "cnc." production, using a special aluminium alloy, which guarantees a very high dimensional stability at high temperatures, a very high wear resistance and it gives easy running and lower friction.



### SLEEVE

This cylinder is made with a special ABC alloy, but the main technical and mechanical characteristics are gained after special internal treatments, which guarantee a very high hardness and a notable wear-resistance. All external surfaces are trued to assure the highest dimensional quality.



### CARBURETTOR

It is made from a single piece of an Aluminium alloy, through a press fusion process. The Intake fuel body is entirely made of ergal for greater lightness and stiffness. All O-rings are made with a special material to guarantee the highest elasticity and resistance to fuel. All carburetors are supplied with a TCS insulating bush.



## CRANKCASE

It has been studied with the most developed and advanced software of mechanical simulation, to simulate all deformations at high temperatures of use. Therefore, we managed to create a very stiff structure, mainly in the area of cylinder/exhaust and carburettor joint/intake. The manifold joint is fixed with 4 identical springs, which are perfectly fitted between the cooling fins. The special aluminium alloy used for the press fusion process, combined with the patent system for port production are extremely important.



## REAR COVER

It is made with ergal and then it undergoes an APS treatment. It is resistant to abrasion, due to conrod rotation, and it also guarantees contemporaneously a reduction loss of friction and therefore power.



## EXHAUST SYSTEM

Pipe and manifold, which form the exhaust system, are meticulously studied and are made of a special aluminium alloy. They are also chromed to guarantee the maximum protection to oxidation and to ease cleaning after use. Various sizes of manifolds are available and the best engine performance is only assured by using the exhaust components of this FALCON series.



## GLOW PLUG

It is entirely produced with special steel, guaranteeing the highest resistance to corrosion. After long testing we have produced also a filament made with a special platinum alloy, which allows a perfect ignition and a far superior duration compared to traditional glow plugs.



## SERIAL NUMBER

A specific serial number is engraved on the crankcase of each engine, which allows tracing back, (at any time and even after a long time from its production and distribution), to the technical specifications and type of components, including the commercial data for each single piece. We guarantee each single engine and any eventual reparation will be carried, only and exclusively, on engines with a recognizable serial number.

