



NEW MC SILENCER

Product overview

In 2019, MC Racing is going to present the CIK-FIA038-SE-93, a new exhaust silencer made specially for the kz 125 category. It will be a completely new product, thanks to the 3D design software and the fluid dynamic simulator, which renovate the approach to the two phases of design and realization, without substituting the obviously necessary tests made on bench test and track.



Conical Perforated Pipe

The silencer looks exactly like a canonical cylindrical type, but its inside hides the most innovative part of the project. It has a conical section, which allows to obtain a more exploitable power curve on track.

Designing and simulating with 3D software

The whole muffler was molded and designed using a 3D software; this method allowed us to study in detail every part of the product, before producing it and testing the different solutions on the simulator.

What is the difference between the conical perforated pipe and a traditional one?

People usually think that the purpose of the silencer, in an exhaust system, might be only to reduce noise level.

The silencer is often modified only to achieve a more satisfying sound for the ears, and the name itself lead people to underestimate its primary role. The silencer, in fact, has great impacts on the exhaust system's performance. In the two-stroke engine, the study of the exhaust pipe is fundamental. The engine charges itself through the pressure waves which are "in phase" between suction and discharge. In simple terms, we try to have a suction pressure that pushes the fresh fuel inside the combustion chamber and pushes the exhausted fuel outside, plus a backpressure to the exhaust pipe, which will work as a sort of "vacuum cleaner" by sucking the exhausted gases from the combustion chamber and inhaling the fresh ones.

During the final stage of the combustion chamber wash, we will try to increase the pressure to avoid the waste of fresh gases, which might come out before being used, and to maintain the ratio between entering and exiting gases. In order to meet these requirements, the exhausts system of a two-stroke engine is always equipped with a double cone along the terminal, that is a divergent / convergent pipe designed for this purpose. Inside the muffler, it happens a very similar dynamic effect, like the one described above, even if it is less intense. By using divergent or convergent cones, we could obtain a better response from the engine, balancing what the exhaust pipe has not already managed to balance and clearing the curve from the power holes. What we were able to achieve with this terminal, after several simulations and tests on the bench test using the first prototypes, was exactly our target: to clean up the power curve and obtain the backpressure necessary to improve the washing of the chamber. The MC Racing CIK-FIA038-SE-93 allows a much better performance of the engine.



Checks at the bench test

Once we finished to design the product, we spent a large period of time at the bench test, where we were able to exam all the possible solutions identified by the simulator.