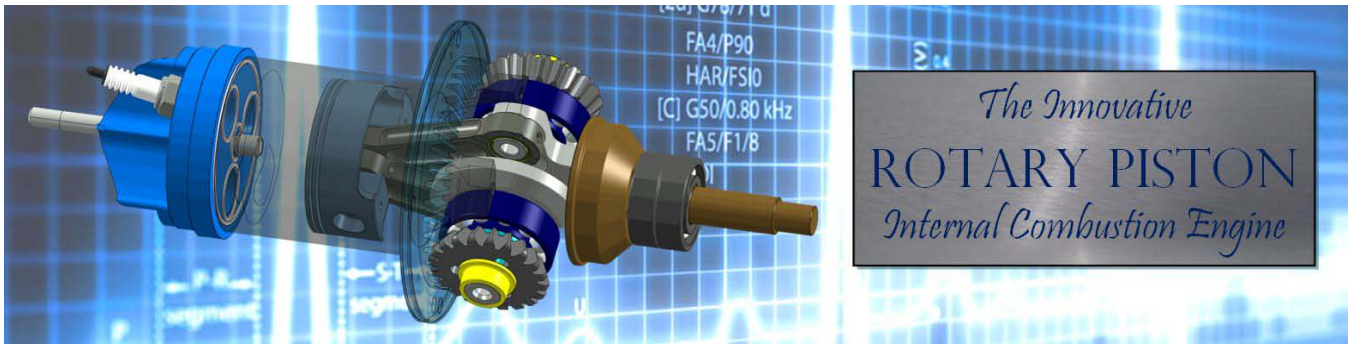


It's History

About the Inventor

The inventor, Michel Arseneau, is a self learner with an impressive professional path. He started earning his skills at early age by competing in motorcycle professional racing and upgrading his machines by himself for them to achieve higher performances.

In parallel he followed a fruitful career by working for, or as a consultant with, prestigious companies such as Bombardier, Montupet and Mecachrome. He now own and operate his own machining company since year 2000.

He masters Catia and Autocad advanced CAD engineering software's as well as the programming and operation of several types of CNC machining centers such as Mazak, Fanuc, Haas and Leadwell.

Since 1991 he has dedicated most of his active life designing new engines of all sorts. The prototypes presented in the following pages are just the ones which proved truly innovative and functional, amongst many other also built but which did not demonstrate any innovative interest in their performances.

In the time period between each of them, there have also been numerous other explorational and theoretical designs, which were not built, but which were necessary in the thinking and elaboration process toward today's advanced design.

What may not be obvious is that, beside all of the required engineering work, a great deal of efforts has also been invested in the precision parts elaboration and fabrication. In addition there has been a great amount of parts machined and finally discarded because they did not meet their performance criteria, typical to any design process. Testing of various outsourced advanced metallurgic coating solutions also soon proved to be necessary as to overcome the stresses of the internal high temperatures and frictions.

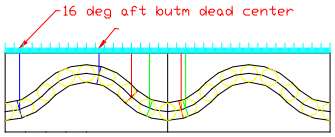
All of these years, there have been continuous and dedicated steps toward what now became to be one of the most brilliant internal combustion engine invented since the legacy Otto cycle. It is truly a simple and elegant performing solution which will prove more fuel efficient and less polluting.

In the following pages you will find the history of the various contractions, all designed over an 18 year period and which successfully worked.

MA 5 Cylinders

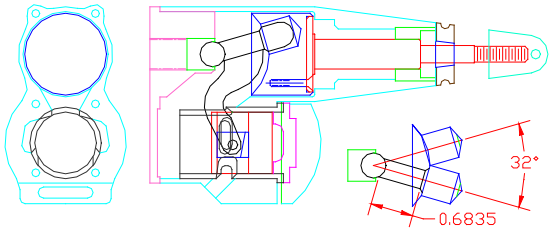
- 1991 - 1993
- Designed by hand drawings
- Machined on a Mazak CNC
- 5 cylinders radial engine
- Two strokes @ 8.2 CC
- Integrated cooling turbine
- First autonomous design experience
- Catalyst to further elaborate new approaches

MIC



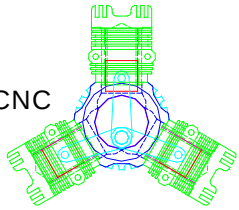
- 1994 – 1995
- 2D CAD design
- Machined on a Mazak CNC
- Linear 1 cylinder 2 piston engine
- 2 strokes @ 20 CC
- Integrated cooling turbine
- First experiments of a linear rotary piston motor
- No cam shaft using a rotary valve
- Dual intake chamber for an over breathing approach
- Exploration of the direct energy transmission concept without a crankshaft
- High tech metallurgic surface treatments
- The inspiration of what became finally the MI 8 design

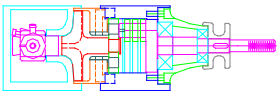
MAC



- 1996 – 1997
- 2D CAD design
- Machined on a Mazak CNC
- 1 cylinder engine
- 2 strokes @ 10 CC
- 1.75 HP @ 10,500 RPM
- Innovative butterfly valves
- Minimum amount of parts
- Has been evaluated by NASA in its twin design
- Ready to be commercialized for RC model airplanes

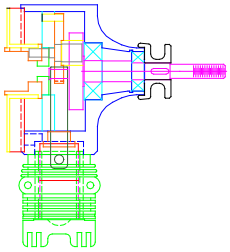
RAD 3

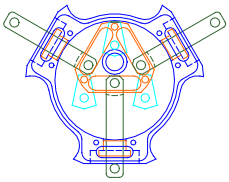




- 1997 – 1998
- 2D CAD design
- Machined on a Mazak CNC
- 3 cylinders radial engine
- 2 strokes @ 22 CC
- Limited @ 9,000 RPM
- High torque at low RPM
- Great experimental platform for the elaboration of the rotary valve concept
- Evaluation of 3 variation of over breathing approach's such as an overdriven planetary turbine
- Work on the aspects of delivering a equilibrated fuel / air mixture to every cylinder

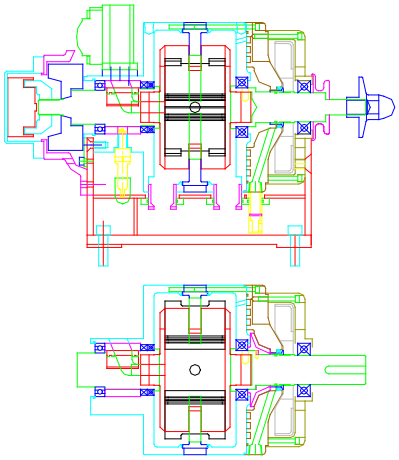
RAD 3a



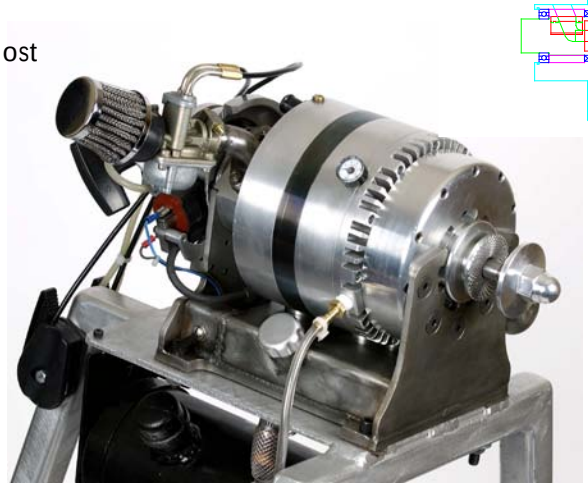


- 1999
- 2D CAD design
- Machined on a Mazak CNC
- 3 cylinders radial engine
- 2 strokes @ 22 CC
- 4.5 HP @ 10,500 RPM
- Simple and well balanced design
- Ready to be transposed as a 4 strokes engine
- Second version built at 34 CC
- Fundamental understanding of a low friction setup
- Outstanding performance of any other prototypes
- The superior results oriented the design efforts toward a more commercial solution

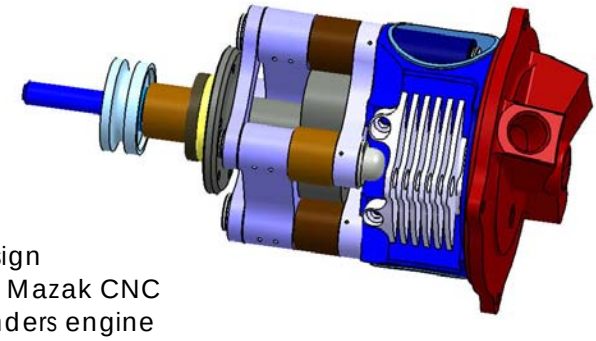
MA 100



- 1999 – 2004
- 2D CAD design
- Machined on a Mazak CNC
- 2 opposed cylinders engine
- 4 strokes @ 100 CC
- Innovative rotary cylinder
- Innovative rotary valve
- Several patent pending on the new concept
- Very high torque at low RPM
- Very smooth operation
- Very simple construction at low cost

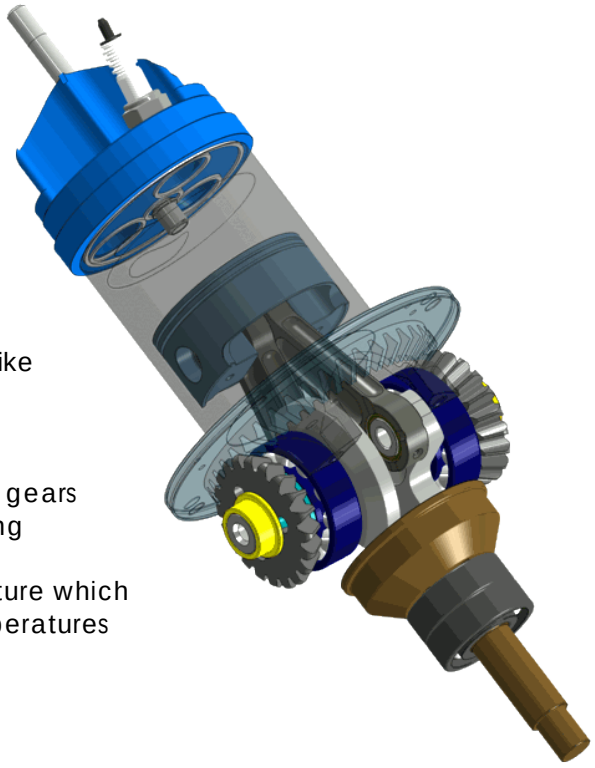


MA 7a



- 2004 – 2006
- Full 3D CAD design
- Machined on a Mazak CNC
- 2 opposed cylinders engine
- 4 strokes @ 12 CC
- Direct descendant of the MA 100
- Innovative rotary cylinder
- Innovative rotary valves with optimal breathing
- Innovative piston return mechanism
- Crankshaft free
- Ultra compact and state of the art machining
- Super balanced with very low vibrations

MI 8



- 2006 – until now
- World Patent granted with no prior art encumbrance
- Full 3D CAD design
- Machined on a HAAS CNC
- 1 cylinder engine (Demonstrator)
- 4 strokes @ 150 CC
- >10 HP @ 3,500 RPM
- Innovative rotary cylinder
- Innovative rotary valves (No valve train)
- Totally balanced and minimal effort due to the scissor like forces of the cranks
- Minimal frictions between the piston and the cylinder
- Greater than a 10 : 1 compression ratio
- The kinetic energy of the rotating piston and planetary gears stores energy to help the piston change its reciprocating direction at the end of its course
- The revolving chamber contributes to a better fuel mixture which gives out a more thorough combustion, at higher temperatures
- Integrated dynamic air cooling prevents auto ignition
- Direct fuel injection ready
- Possibility of an on-the-go variable valves timing
- Ultra compact and state of the art machining
- Very small footprint with high power
- Simplistic design using minimum parts
- Ideally balanced for a very low vibration operation
- Lightweight, mostly made of advanced alloys
- High torque at low RPM
- Small and short displacement piston
- Rugged and abuse tolerant
- Minimum assembly labour and easily field reparable
- No specialized tools (only 8 bolts)