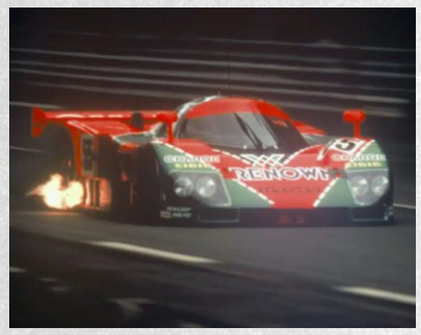
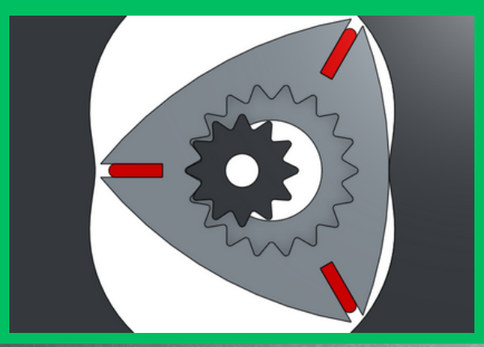
WANKEL ROTARY ENGINE

INVENTED IN THE 20TH CENTURY BY FELIX WANKEL,THE ROTARY ENGINE IS A TYPE OF INTERNAL COMBUSTION ENGINE WITH THE ADVANTAGE OF HIGH VOLUMETRIC OUTPUT, VERY FEW MOVING PARTS AND LOW VIBRATION. IT HAS BEEN USED IN CARS LIKE THE MAZDA RX-7 ROAD CAR OR THE 787B RACECAR THAT WON THE 24H OF LE MANS IN 1991



SHAFT & GEARING

THE ROTOR SPINS INSIDE THE HOUSING WITH A 2/3 GEAR RATIO. THE SHAFT SPINS INSIDE THE ROTOR SO THAT THE APEXES TOUCH THE HOUSING



HOUSING

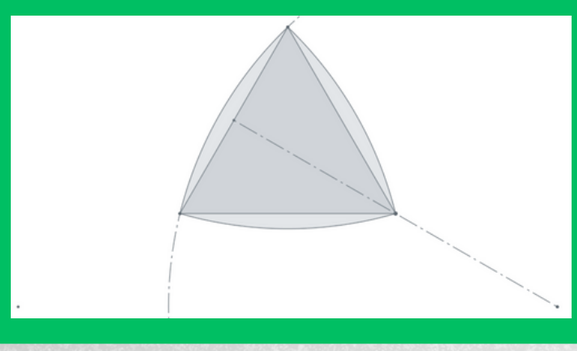
THE HOUSING IS MADE WITH AN EPITROCHOID CURVE.
WITH ALL PARAMETRES SET IN THE EQUATIONS WE CAN PLOT POINTS AND A CURVE AND IMPORT IT INTO CATIA

$$x = 3\cos(\theta) - 0.5\cos(3\theta)$$

$$y = 3\,sin(\theta) - 0.5\,sin(3\theta)$$

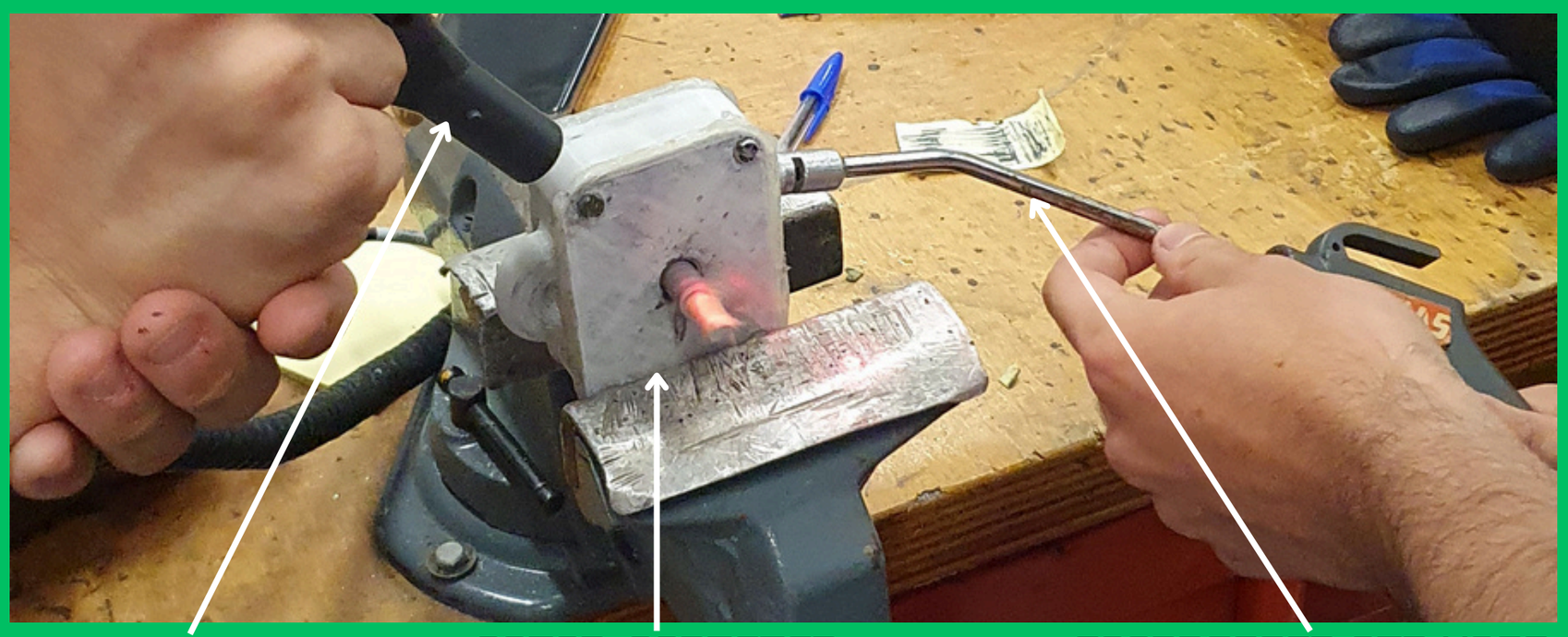
ROTOR

THE ROTOR IS MADE WITH A ROULEUX TRIANGLE.
THIS SHAPE IS EASY TO MAKE IN A SKETCH AND CAN THEN BE EXTRUDED IN CATIA



KINEMATIC DIAGRAM

TEST WITH COMPRESSED AIR AND RPM MEASUREMENT



OPTIC TACHYMETER

MOTOR, MODIFIED FOR AIR TEST

COMPRESSED AIR HOSE (6 BAR)

DIMENSIONS:
150X90X60 MM

DISPLACEMENT:
241 CC

REVOLUTIONS PER MINUTE:
3254

COMPRESSION RATIO:
8:1

ESTIMATED POWER OUTPUT:
17 HP