INVESTIGATION OF THE SEALING METHOD FOR A NEW CONCEPT ROTARY ENGINE

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ABSTRACT –
The paper is about a new concept rotary engine whose power to weight ratio is up to 5 times higher than that of conventional engines and it has an up to 20% higher thermal efficiency than Otto engines. Like every rotary engine, one of its major challenge is the sealing between a moving and a stationary part. Purpose of this paper is the investigation of the most suitable labyrinth that could minimize the leakage during the combustion process between the combustion- (50 bar) and the compression-chamber (2 bar). The investigation uses a CFD analysis and it was based in the four most dominated labyrinth systems found in the literature. The conclusion of the investigation is that the sealing of gas-turbines for their blades is the most efficient one and this comes in line with the initial expectation that this engine has more common characteristics with a gas-turbine rather than a reciprocating or Wankel type engine.