

Boston University

College of Engineering
110 Cunningham Street
Boston, Massachusetts 02215
617/353-2814

Department of Aerospace
and Mechanical Engineering



January 12, 2000

To Whom It May Concern:

I am currently Professor Emeritus with the Department of Aerospace/Mechanical Engineering at Boston University. I have studied and evaluated the materials, documents, and patent information related to the "RKM - Rotation Piston Machine" technological inventions.

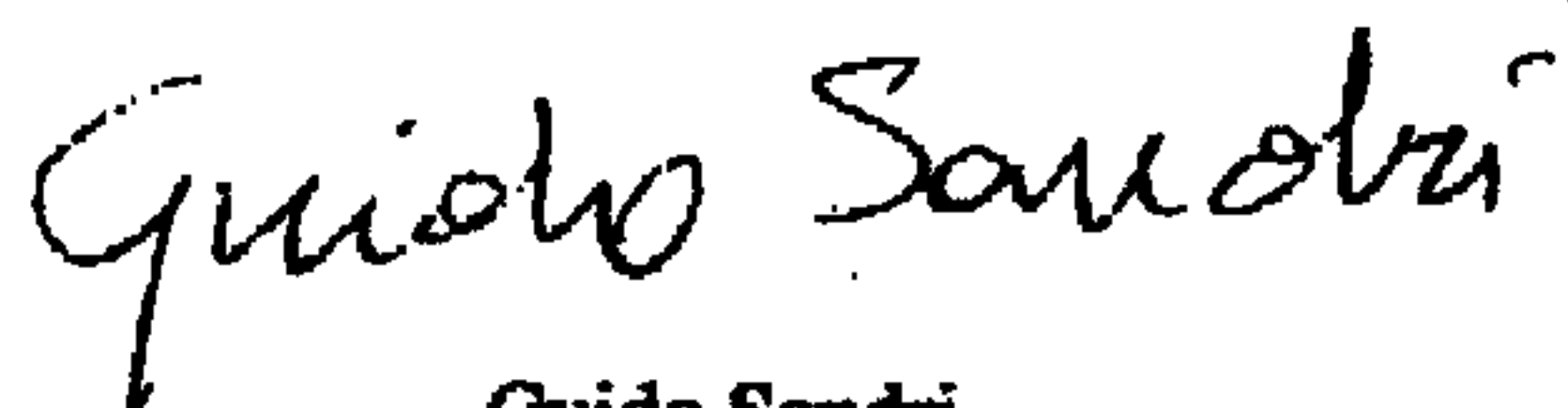
As an expert in the area of Mechanical Engineering, I have come to the following conclusions.

1. The RKM machine is a completely new type of inner combustion engine which is based on novel kinematic and dynamic principles that make it possible to avoid the use of a crankshaft mechanism and at the same time to provide a high degree of fuel compression.
2. The RKM machine has a number of crucial advantages over conventional (back- and-forth piston motion) internal combustion engines, in particular, the following:
 - a) 3 - 5 times greater power density.
 - b) Greater and more uniformly distributed torque.
 - c) Smoother engine operation, which results in a longer life cycle.
 - d) Easy coupling/decoupling of power units.
 - e) Simpler design with fewer components, which leads to higher reliability.
3. The RKM machine has a very important advantage over the Wankel rotary engine. The compression ratio is limited geometrically to low values (6 - 9) in the Wankel engine, which excludes the use of it in a Diesel process machine and makes its use in a gasoline machine quite inefficient. In contrast with this, the RKM engine has geometrically unlimited compression ratio, which is as high as for the best conventional piston machines. As a result, the efficiency of the RKM engine is at least 2 - 3 times higher than that of the Wankel engine, and even slightly better than the efficiency of conventional engines.
4. The RKM machine can utilize various kinds of fuels in both Diesel and spark plug ignition processes. Because of reduced fuel consumption and exhaust, the RKM machine is more environmentally friendly than conventional machines.
5. Besides its use in inner combustion engines, the RKM technology can be used in pneumatic and hydraulic motors, as well as in pumps.

6. The areas of application of RKM machines are numerous and very broad. I will list only several of them.
 - a) Cars, motorcycles, locomotives, and other ground vehicles.
 - b) Tanks and other military vehicles.
 - c) Ships, ferries, submarines, etc.
 - d) Aircraft and helicopter industry.
 - e) Oil and gas industry, mining.
 - f) Portable and stationary power generators.
 - g) Machines for agriculture and household, power tools.
 - h) Toys and entertainment devices.
 - i) Lightweight power units for space exploration.
7. The RKM machine is easily scalable and covers a remarkably broad range in power and size. Because of its compactness and high power density, it can be used in many cases where the conventional engines are difficult to apply. The RKM machine makes it possible to get rid of cumbersome and inefficient power transfer mechanisms, differentials, etc. Thus, universality and flexibility of the RKM machine supercede those of the existing conventional machines.
8. The development and manufacturing of the RKM machine can be readily performed with the existing technological tools and means of production and does not require development of new production technology.
9. The RKM machine is fully compatible with all technologies that currently utilize the conventional piston engine.
10. Several stages of research and development are required in order to make the RKM technology ready for mass production. However, it is beyond any doubt that the project is scientifically sound and can be implemented with a time period of a few years.

Summing it up, I am very favorably impressed by this ingenious invention. It is my firm opinion that introduction of the RKM machine into modern technology will be a large-scale technological revolution. The economic effect of this technological change must be so tremendous that it would take special research to estimate its real scope and dimension.

I wish I could see this change to become a reality.



Guido Sandri
Professor Emeritus of
Mechanical Engineering