

Title (en)  
VANED ROTARY ENGINE WITH REGENERATIVE PREHEATING

Title (de)  
ROTIERENDE SCHAUFELMASCHINE MIT REGENERATIVER VORHEIZUNG

Title (fr)  
MOTEUR ROTATIF A PALETTES A PRECHAUFFAGE PAR REGENERATION

Publication  
**EP 0865565 A2 19980923 (EN)**

Application  
**EP 97937755 A 19970908**

Priority  
• GR 9700034 W 19970908  
• GR 96100310 A 19960906

Abstract (en)  
[origin: WO9810172A2] A vaned rotary engine with a cylindrical (circular cross section) stator (1) and a multilobed rotor (2) having the same axis with the cylinder. The rotor is keyed to a shaft (3), supported on the baseplate (11) through the bearings (14). The rotor lobe tips (17 and 18) provide a sufficient blocking of the combustion chamber (12) to allow for a (nearly) constant combustion process. This chamber is embedded in the stator wall and the fuel is injected into it through the injection nozzle (8). The four volumes needed for the thermodynamic processes, i.e. the inlet (21), the compression (13), the expansion (20) and the exhaust (19), are formed by the two cavities formed between the stator inner surface and the rotor outer one with the help of three diaphragms. The first diaphragm (9) separates the inlet-exhaust volumes and is continually in touch with the rotor surface. The other two are positioned very close to the combustion chamber, one in front (7) and the other behind it (6), as the rotor rotates. The back diaphragm is initially in contact with the rotor surface while the other is recessed. When the pressures in the compression and the expansion volumes are nearly equal, the two diaphragms exchange position, by lowering the front one and withdrawing the back one. This exchange leads to a mixing of a part of the flue gasses with the air, thus acting as a regenerative preheating mechanism for the air.

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