TURBO-CYCLE ROTORY ENGINE

THOUGHTFLOW DESIGN

An engine with a very low part count, High power density, and flexibility to operate with a constant pressure burn for high power and constant volume burn for high efficiency is in the concept stage but could prove to be disruptive technology by having reduced internal losses an adaptable operating mode and a simple peumatic regenerative braking function integrated with the design.

Benefits Summary

Optamizible for power and efficiency,high power density, Non-idling, self starting, self lubricating, with regenerative braking. more

Development Summary

US and International patents are pending Large collection of CAD modled concept and applications Academic review- very positive Professional Engineering review- very positive more

IP Summary

This technology is supported by 1 US patent. more

Technology Benefits Description

Fuel savings in three ways:

Compression is accumulated so regenerative braking is already integrated. It may be operated like a Hybrid without conversion losses. While slowing down, the fuel burn can be stopped. Compression which is still being stored would be later used to start or motor the engine without fuel.

All four cycles (Combustion, compression, intake, and exhaust) are completed simultaneously and the need to idle is eliminated. Therefore pumping loss are gone and the engine can be started from zero RPM with full power.

With external combustion the compression and power stroke can be independently modified. This means they can be optimized by design or even dynamically altered on demand. For efficiency, it may be desired to have three compression strokes and nine power strokes. On the other hand, if more power is needed there could be six compression strokes and six power strokes. A short term supercharged mode could even supply twelve power strokes.

High power density:

There are 72 chamber displacements for rotation. This is six times the volumemetric capacity of a rotary vane pump of comparably size. The ability To process a large volume of gases leaves a small footprint. A 300 Cubic inch dynamic displacement is possible from a size 20in. diameter x 6in. high.

This is near the power density of turbine engines but with positive displacement and fewer accessories needed.

Technology Differentiation and Uniqueness

Development Stage

First Evidence/Concept

Development Status Summary

US and International patents are pending Large collection of CAD modled concept and applications Academic review- very positive Professional Engineering review- very positive

Application and Potential Advantage

1. Pneumatic Hybrid automobile
2. "In Wheel" motorcycle engine
3. Aircraft, Ultralight, UAV
4. Generator (macro and micro)
5. Marine
6. Recreational vehicle
7. External combustion engines
8. Closed system Waste Heat recovery
9. High volume and high pressure pumps
10. Series staged vacuum and compression pumps
11. Hydraulic Peumatic pumps, motors, rotory controlers

Patent Information

1	**Number**	**Title**	**Country**	**Status**	**Date**
	US 60/540-642		US	Pending	
	US Class	**Intl. Class**	**References Cited**		
2	**Number**	**Title**	**Country**	**Status**	**Date**
	11/048361			Pending	
	Class	**Intl. Class**	**References Cited**		
3	**Number**	**Title**	**Country**	**Status**	**Date**
	CA 2496051		CA	Pending	
	CA Class	**Intl. Class**	**References Cited**		

Technology Provided By
THOUGHTFLOW DESIGN

Provider Transaction Status
Has not engaged in Introductions

Long Description

Each sweep of a drive plate accomplishes two of the cycles. In this concept, three of the six drive plates exchange exhaust with fresh air as they sweep a chamber ahead of the power stroke. The other three drive plates expand combustion gases and compress The fresh air ahead of it into the central accumulator.

Fuel is introduced with the compression entering the combustion chamber. The amount and timing of this charge can be delivered in efficient pulses or in a nearly constant pressure mode for high power.

Collaboration Type Sought
Venture Funding, R&D Contract, Joint Venture, License, For Sale

Seller Support
Documentation