

Optimization of Scroll Geometries for Small-Scale ORC



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Scientific Achievement:

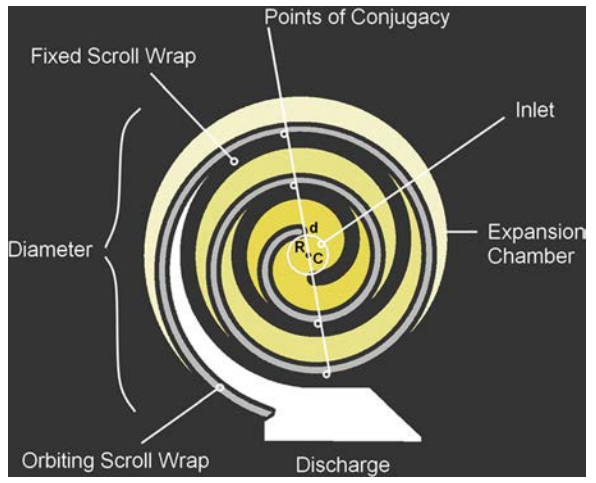
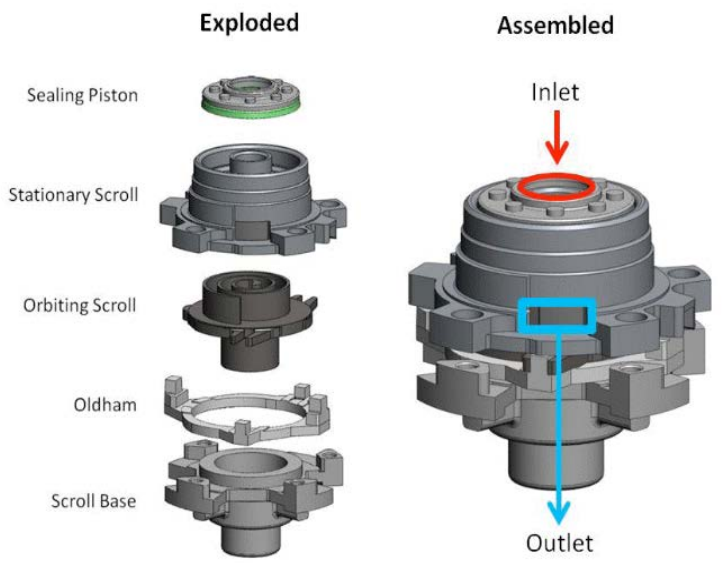
Development of a generalized procedure for generating optimum scroll geometries using Genetic Algorithm (GA).

Significance and Impact:

Scroll geometry for compression has been used extensively in the refrigeration industry. The same concept of scroll is being used as an expander for power generation. The GA-based code helps in identifying the right scroll geometry specifically for low-temperature organic Rankine cycles. We believe that the optimized scroll geometry will have a significant impact on the efficiency of the power block.

Research Details:

- Thermodynamic model developed by MIT is linked to REFPROP by IISc to obtain state point property data.
- The code has ability to suggest the optimum operating parameters for various working fluids for a given scroll geometry.
- The code uses Genetic Algorithm to optimize the scroll geometry.



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