Development of General Purpose Simulation Tools for Positive Displacement Compressors PI: Eckhard A. Groll

Objective:

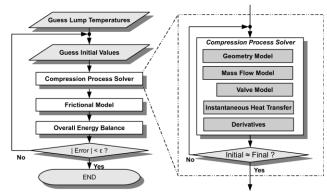
 To develop a comprehensive compressor simulation platform based on the previous compressor modeling efforts at the Herrick Labs to predict the performance of hermetic positive displacement compressors.

Problem:

 Experimental evaluation of influences of geometry, leakage gaps, heat transfer and frictional coefficients on compressor performance is costly.

Expected Results/Impact:

- Validated comprehensive simulation program that accurately predicts. compressor performance.
- Available to CHPB members for their future use.

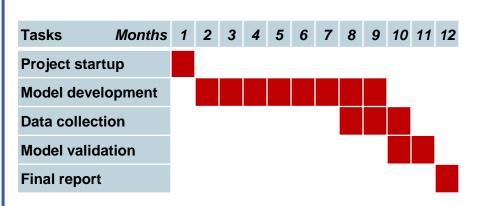


Approach:

- 1. Project Startup
- Develop generic and comprehensive simulation modeling platform to predict the performance of positive displacement compressors
- 3. Collecting compressor performance data from the literature
- 4. Validation of model prediction using collected compressor performance data



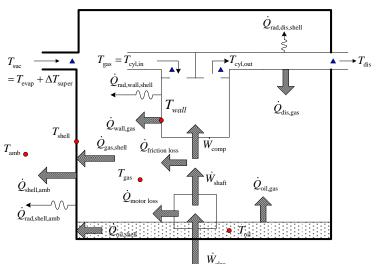
Schedule





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Schematic of energy flows inside a hermetic compressor



P-V Diagram of Reciprocating Compressor (900 RPM, $P_{suc} = 1.8 \text{ MPa}$)

