

FREE PISTON LINEAR MOTOR COMPRESSOR

- 90% fewer moving parts than traditional reciprocating compressors
- Single moving part for 4 stages of compression
- Dynamic controllability not possible with rotary-driven systems

BENEFICIAL ATTRIBUTES

CAPEX

- > Reduced part count
- > Higher swept volume/stroke
- > Simpler hermetic sealing
- > Reduced footprint
- > No blowdown or recycle
- > Reduced assembly labor

OPEX

- > Fewer moving parts
- > Fewer wearing parts
- > Higher efficiency (both stroke and system)
- > Oil free

OPERABILITY

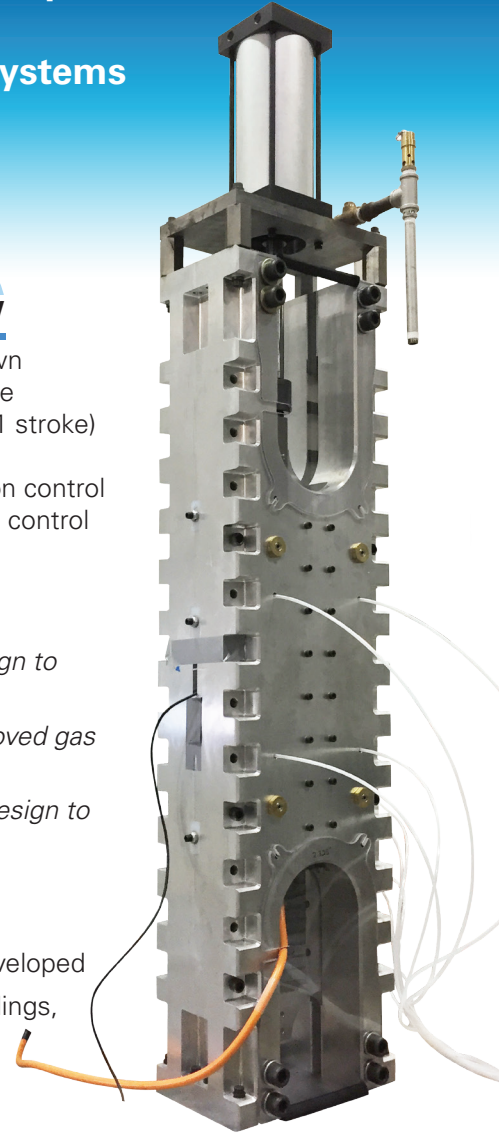
- > Increased turndown
- > Fast response time
- > Safe (stop within 1 stroke)
- > Quieter
- > Independent piston control
- > Adaptive real-time control

MARKET APPLICATIONS

- > Oil and Gas: Methane and vapor recompression (*Leverages hermetically sealed design to eliminate gas leakage; leverages high turndown to eliminate recycle*)
- > Defense and aerospace: Air supply and sampling (*Leverages oil free design for improved gas purity*)
- > Compressed natural gas: Vehicle refueling (*Leverages hermetic design and oil-free design to prevent leaks and gas contamination*)

STATUS

- > Developed by GTI and University of Texas
- > Two prototypes built and validated in operational testing
- > Market application studies underway with end-users
- > Supply chain partnerships being developed
- > Commercial protection via patent filings, trade secrets and know-how



50 HP Air Compressor,
18x Power Increase

2012

ARPA-E
Award
Demo

2013

Bench
Demo

2014

1.7kW
CNG
Demo

2015

Explore
Scale up

2016

Commercial
Motor
Demo

2017

30kW
Motor
Demo

2018

30kW
Compressor
Demo

**PARTNER WITH US TO PROGRESS A MARKET OFFERING
CUSTOMERS, SUPPLIERS AND/OR INVESTORS NEEDED FOR COMMERCIALIZATION**

David LaMont, Ph.D.

Director, Commercialization
David.LaMont@gastechnology.org
(847) 768-0586

Jason Stair, M.S.

Principal Engineer
Jason.Stair@gastechnology.org
(847) 768-0935

1.7kW CNG Compressor for Transportation

