#### Planetary Expanders

Presented by:

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March 13th, 2013

### **New Planetary Expander**

- 2,000 psi rating
- 1800 RPM
- Oil Free
- Self Cleaning
- Economical
- Rotary Positive Displacement

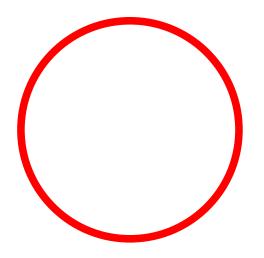
\*First ever public debut will be at 5:45pm

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# **Operating Principle**

### **Planetary Design**



**End view** 



# **Engineering Breakthrough**

Patent Pending\*

**Precise Timing** 

- No Belts or Chains
- No Gears

- No Power Electronics
- No Backlash

## Applications: Oil & Gas, Geopressure

#### **Natural Gas Applications**

- J-T valve
- Wellhead choke
- Gas processing plants
- Gate stations (gas let-down)



## Oil Wells: producing and orphaned

### **Geopressure to Green Energy**

\*150,000 pressurized wells in Texas over 4,000 producing wells in the Gulf

# Challenges of TotaFlow

#### **Natural Gas**

- Hydrate Formation
- Machine Lubrication
- Flow variation

#### Geopressure

- Scale Formation
- Corrosion
- Incompressible fluids

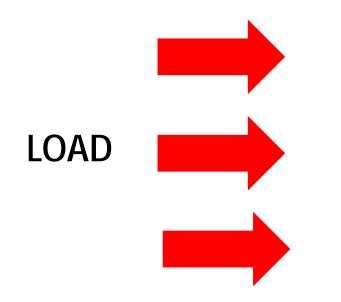
### **Self-Cleaning Rotors**

**Oil Free Rotors** 



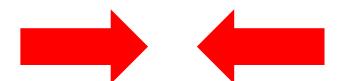
# **Challenges of High Pressure Fluids**

**Extreme Thrust Loading** 





## Solution to High Pressure Fluids



### **BALANCED LOAD**

**REDUCED WATERHAMMER** 





### Pressure vs. Thermal

## Any Questions?

Unveiling event at 5:45pm

www.helidynepower.com

### **Prior Attempts**

Shaft Seals

**Scale Removal** 

**Flow-Rate** 

**Oil-Free**