



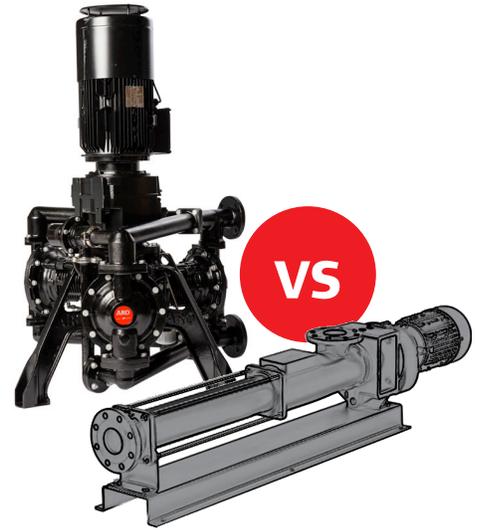
STREETFIGHTER

EVO Series™ Pump

VS TRADITIONAL PROGRESSIVE CAVITY PUMPS

The new ARO® EVO Series™ pump joins the best of our pneumatic heritage with the ultimate technology that could be applied in a diaphragm pump technology.

A pump that comes with true dead head, dry run capabilities



Features and Benefits



ARO® EVO Series™ Pump offers:

- Auto shut-off under high pressures. The only electric diaphragm pump in the market that offers the “real” dead head, dry run and dry priming capability
- Plug and play solution
- Exclusive Smart ARO® Set up that automatically program the system parameters.
- Closed loop interface - process control and real time data accuracy
- Smooth operation even at maximum load conditions
- Significant reduced noised compared to other electric diaphragm pumps
- New diaphragm materials - increase diaphragms durability
- Easy serviceability and lower maintenance costs
- Compact footprint - more space to work.
- No extra accessories or equipment needed to full operation



EVO Series™ Pump Competitive Assessment

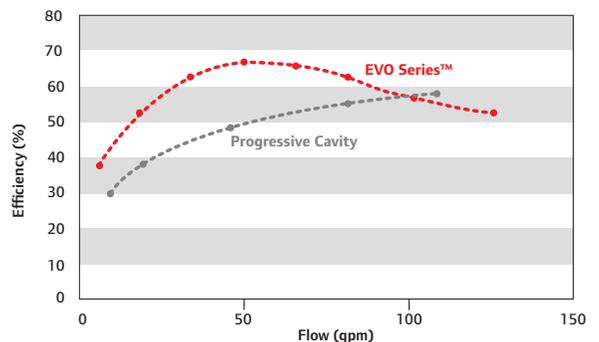
	ARO®	Progressive Cavity
Variable Flow and Head Control	✓	—
Deadhead Safety	✓	—
Dry Running	✓	✗
Dry Priming	✓	✗
No Alignment Required	✓	✗
Sealless	✓	—
No Slip	✓	—
Chemical Compatibility	✓	—
Leak Detection	✓	✓
Solids in Fluids	✓	✓
Efficiency	✓	✗



Commitment to Sustainability

- The EVO Series™ Pump was designed to deliver the maximum of energy efficiency
- EVO Series™ can deliver a stable performance achieving the highest energy efficiency rates compared to other PD pump technologies
- EVO Series™ 68% energy efficiency comproved

2” “Wire to Water” Efficiency



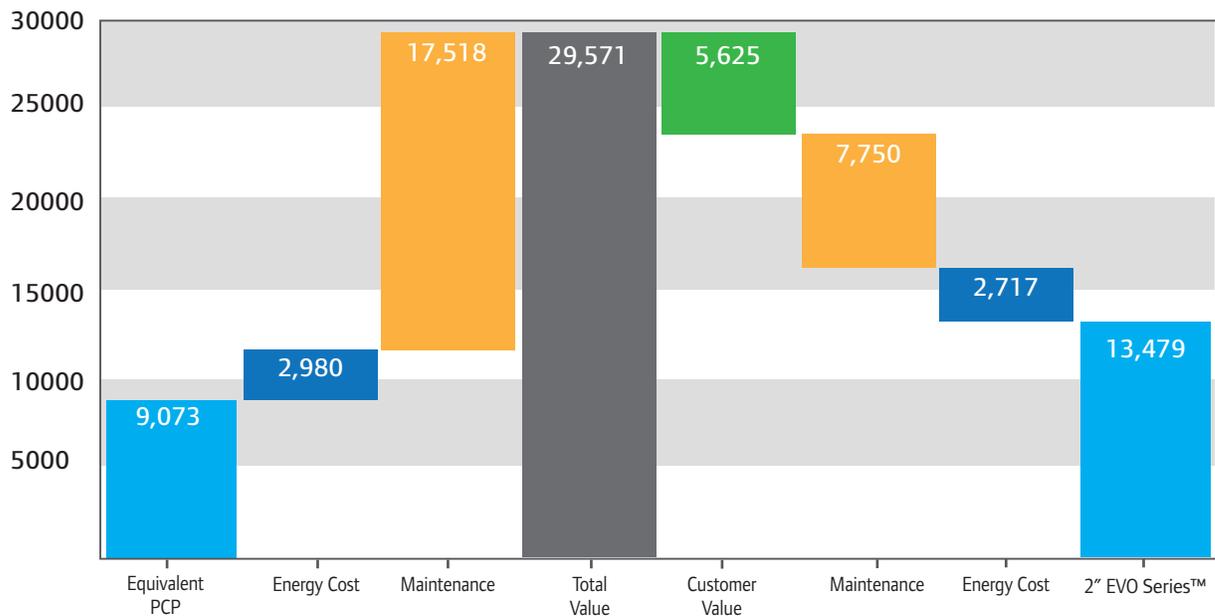
ARO® EVO Series™ offers the best Total Cost of Ownership (TCO) of the market



Total Cost Of Ownership Evaluation

- Competitor's standard model pump only provide basic pump operation. Extra accessories are needed to reproduce a slightly similar pump operation control compared to an EVO Series™ pump. E.g. dry running detection kit, controller to motor cables, etc.
- The absence of deadhead capability causes premature damage in the parts, as a consequence the maintenance intervals get reduced
- Failures can affect stators, rotors, joints, seals, which the ownership cost represents the cost of a brand new pump in less than 2 or 3 years
- The cost of the maintenance will increase due the difficult of operation over the equipment and extra and specialized tools will be necessary
- Higher diameter in the pipe will be needed to achieve the pumping levels of EVO Series™
- High temperatures may affect the performance of the pump. See a real case study example in the back of this report.

All tests and findings are based on results and calculations performed internally in ARO's lab facilities. All cost displayed are MSRP.



TCO Assumptions

Values in USD dollars.

Reference Model: most popular progressive cavity pump flow rate ≈ 30m³/h including AC motor; VFD avg market value \$945

Progressing Cavity pumps may need more than 1 stator change per year and a complete overhaul each 2 or 3 years.

Operating Assumptions: 8 hours/day; 360 days/year; 3 year of operation

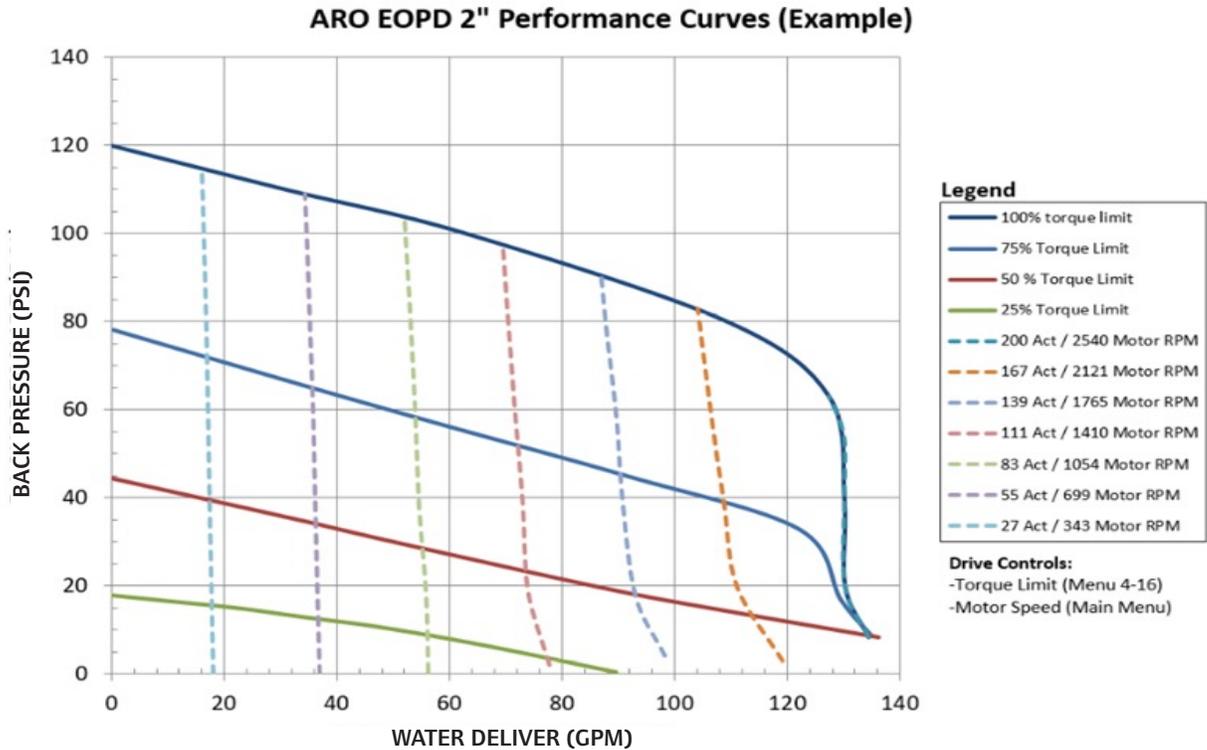
Time to repair: PCPo 4h ; EVO-Series pump 2h; Average cycles per maintenance: 3 million Labor cost: \$100 per hour; Kw/h rate: \$0.13 (eia.gov)

Potential Customer Progressive Cavity Pump Problems:



- Run dry will quickly destroy expensive stators and rotors
- Deadhead or stall can even damage the entire pump or system
- Frequent downtime and complex repairing process
 - constant wear and tear of the stator due to frictions, corrosive or abrasive fluids and semi-solid materials
 - constant wear and tear of the rotor: happens slightly less compared to stators but frequent replacements can be applied if semi-solids fluids
 - constant leaking from mechanic seals
- Expensive spare parts and constant shortages
- Large footprint and big space needed for the maintenance process
- Typical maintenance may require two people 4-6 hours
- Shaft seal failures/alignment problems
- Acid attack when PH fluids is below
- Failure Pitting and Hysteresis
- Corrosion (sometimes causing Swell (the most severe case of pitting corrosion))

2" EVO Series™ Electric Diaphragm Pump Performance Curves



Case Study

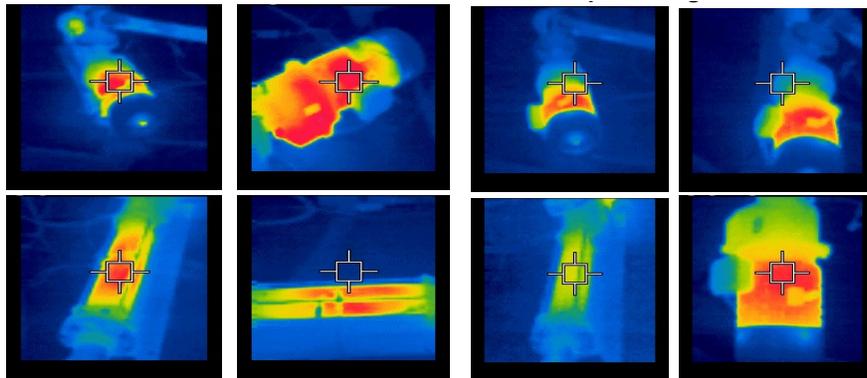


#1 Pump damaged due to low range in the fluid conditions

- It affects the pump performance and increase the operation costs
- EVO Series™ Electric Diaphragm Pump comes with integrated flow and pressure management system as standard offering

High Speed / High Pressure

Low Speed / High Pressure



#2 Most Common Examples of damaged Progressive Cavity pumps

- It significantly affects the pump performance causing process downtime and expensive maintenance costs
- EVO Series™ Electric Diaphragm Pump True Dead head capability and also able to run indefinitely
- With the diaphragm technology advantage, the pump can perform very well with abrasive fluids
- EVO Series™ Electric Diaphragm Pump's unique design also increase the parts durability which contribute to higher maintenance intervals.

Damage By Dry Run



Rotor Wear



Abrasion Wear In The Rotor



Burnt Stator

