

# **Solar Chemical Injection Pump**



TRIDO Solar Powered Chemical Injection Pumps leverage fieldproven technology to deliver chemical year around with precision and reliability while eliminating methane venting. The maintenance-free PMAC motor coupled with a custom-built VFD controller delivers high torque with low power consumption at start-up and normal operation. This technology enables TRIDO's system to accurately inject chemicals at high pressure. TRIDO system can accommodate up to 8 independent chemical injections lines. TRIDO injection system interfaces with most pump head models available on the market today.





Developed for NASA Space Elevator program by University of Saskatchewan

# **High Efficiency Motor**

- Only draws 10% of power to achieve similar torque output as compared to peers
- Permanent Magnet Asynchronous 3 Phase Brushless Motor leader in motor efficiency
- Three phase AC motor with soft-start feature to minimize power loss and wear on equipment. Soft start only requires 0.3 to 0.4 Amp, compare to start-up range of 4-40 Amp draw from peers
- Class 1 Div. 1 Groups C & D, robustness in safety



# **Variable Injection Adaptability**

- Powers up to 8 individual injection heads w/ variable flow rate for different chemical fluids
- Compatible with majority o finjection heads commonly available on market
- Injection rate: 1-40 GPD per head. Up to 320 GPD total capacity for single fluid line
- Injection pressure: 1400 psi 9000 psi



### **Automation Capability**

- VFD control system with 4000 feedback per second high precision, low power loss
- Automation compatible with SCADA through MODBUS connections
- Remote control based on pressure, temperature, and/or chemical tank volume

#### **Operation Range**

Piston size 5100 Series Fluid End	Maximum Pressure	Piston size 5000 Series Fluid End	Maximum Pressure
3/16" Piston	9000 PSI	3/4" Piston	900 PSI
1/4" Piston	6200 PSI	1" Piston	450 PSI
3/8" Piston	3600 PSI	1.25" Piston	350 PSI
1/2" Piston	1600 PSI		

### **Injection Range**

Strokes/ Minute	Volumetric Rate Gallons Per Day (GPD)					
3/16" Piston	0	1	2	3	5	5
1/4" Piston	0	2	3	6	9	10
3/8" Piston	1	3	6	12	18	20
1/2" Piston	1	6	12	24	37	40

Rate table for single head operation, and can be upscaled up to 320 GPD by combining injection heads for a single fluid line

#### **Pressure Range**

Power Maximum Capacity for Dual Head Adapter	Maximum Operating Pressure			
3/16" Pistons	5200 PSI			
1/4" Pistons	3000 PSI			
3/8" Pistons	1500 PSI			
1/2" Pistons	850 PSI			
Power Maximum Capacity for Four Head Adapter	Maximum Operating Pressure			
3/16" Pistons	1700 PSI			
1/4" Pistons	950 PSI			
3/8" Pistons	450 PSI			
Power Maximum Capacity for Eight Head Adapter	Maximum Operating Pressure			
3/16" Pistons	1400 PSI			
1/4" Pistons	850 PSI			
3/8" Pistons	400 PSI			



## **TRIDO's Solution : Superior Reliability**

- Low power consumption of the TRIDO Motor during start-up avoids cyclical surge of discharge on batteries, extends battery life even at extreme temperature
- Low power consumption of the TRIDO Motor during normal operation leads to long autonomous run time, minimize interruption to operation
- TRIDO VFD precision control adjust power output, prevent equipment wear and tear



Single Head



**Quad Head** 



**Double Head** 







#### **Customized Skid Design**

WWW.TRIDOSOLUTIONS.COM contact@tridosolutions.com