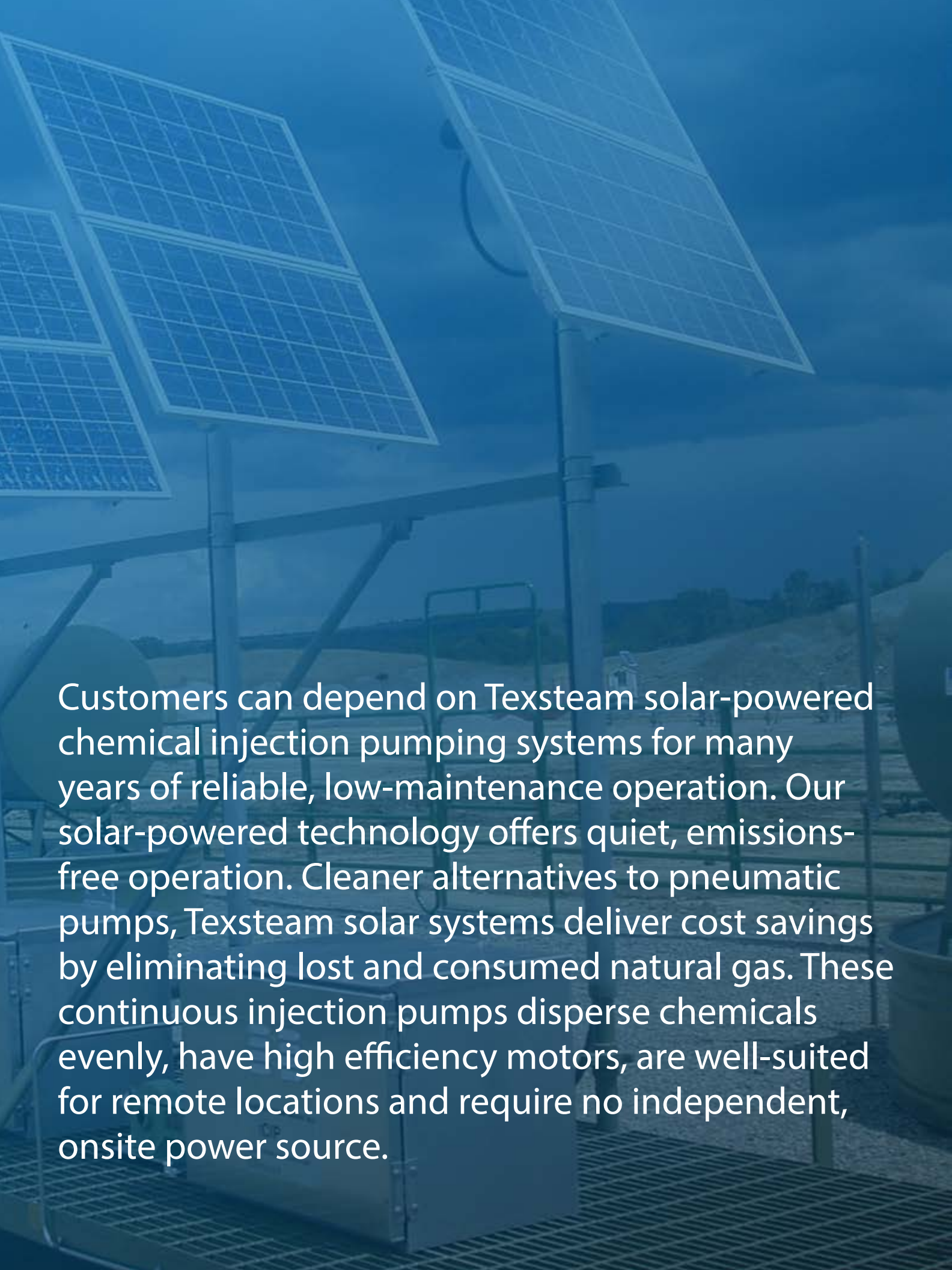
DRESSER
NATURAL GAS SOLUTIONS

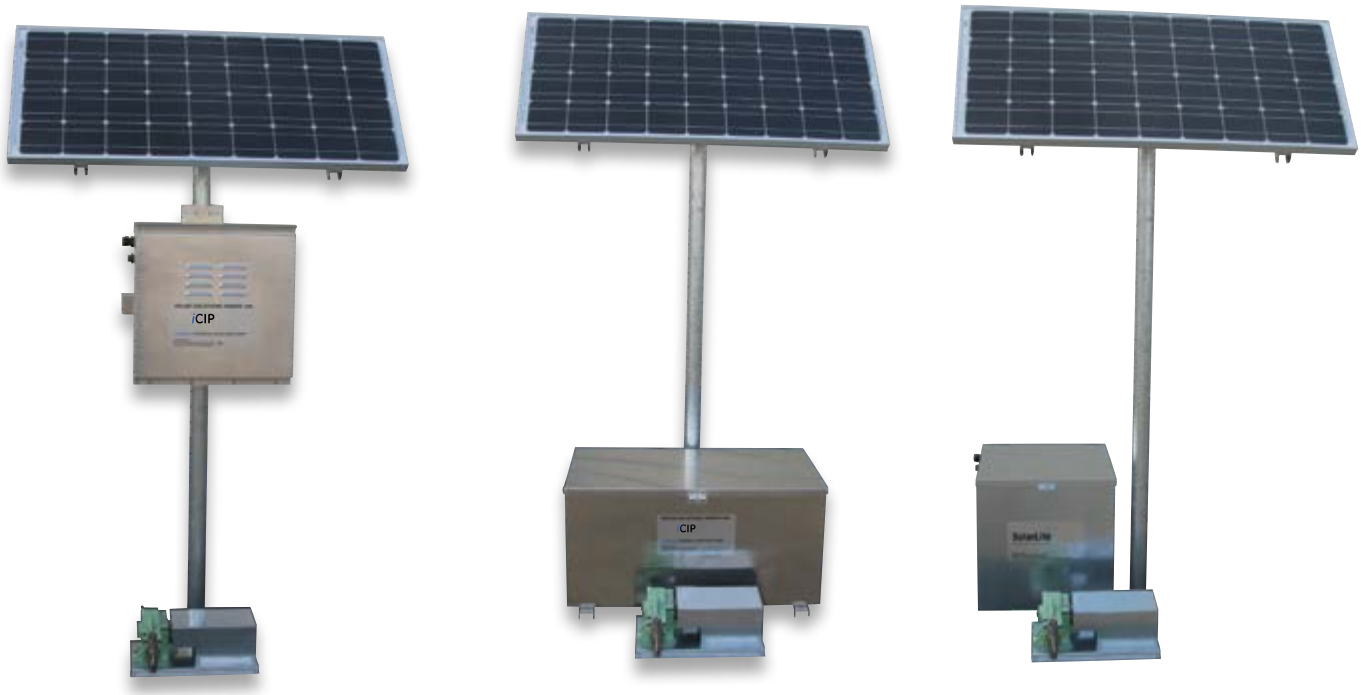
Texsteam Pumps

Texsteam Solar Solution Pumps

for long-life, low maintenance and sustainable services



Customers can depend on Texsteam solar-powered chemical injection pumping systems for many years of reliable, low-maintenance operation. Our solar-powered technology offers quiet, emissions-free operation. Cleaner alternatives to pneumatic pumps, Texsteam solar systems deliver cost savings by eliminating lost and consumed natural gas. These continuous injection pumps disperse chemicals evenly, have high efficiency motors, are well-suited for remote locations and require no independent, onsite power source.



Texsteam iCIP (Intelligent Chemical Injection Pump)

Standard Features

- Zero emissions chemical injection pump
- Ideal for remote locations – does not require any onsite power source
- Wide variety of volume and pressure capabilities
- Microprocessor based programmable controller
- Continuous injection provides even dispersion of chemical
- System protections utilize fault management system
  - Low battery shutdown, motor overload protection
  - Fuse protection
- Certified and approved to CSA (Canada) and UL (USA) standards:
  - Class I Division II – Groups C & D
  - Class I Division I – Groups C & D (motor)
- NEMA 3R battery enclosure houses the control panel and batteries
- Quiet operations
- 24 month system warranty

Texsteam iCIP Pump

The Texsteam iCIP solar pump is an intelligent chemical injection pump that offers integrated communications and data logging capabilities. These capabilities, combined with optional I/Os allow one to remotely monitor and adapt to changes in well pressure and temperature, chemical usage and pump motor speed allowing one to be proactive in preventing well shutdown, costly pump repairs and environmental damage due to chemical leaks.

- Proven 2200 series pump design utilizing Texsteam packing and plunger technology
- 316 SS heads standard – available in four head sizes – 3/16", 1/4", 3/8", and 1/2"
- Wide variety of available packing and o-ring materials for chemical compatibility
  - New SDP packing technology helps to mitigate compatibility problems
- Eccentric cam design and permanently lubricated bearings
- Available in simplex, duplex or triplex pump-end configurations – with stroke adjustment option
  - Ability to increase volume, pump different chemicals or different volumes, multiple injection points, and other applications

Motor (Proprietary Dresser Natural Gas Solutions Design)

- Brushless DC gear motor
- Continuous duty variable speed
- Adjustable RPM to match output requirements
- High efficiency – low amperage draw helps deliver long battery life and low solar panel wattage
- High torque performance response, as pressure fluctuates, pump speed remains constant
- Controller directly interfaces with motor to a set speed depending on the desired flow rate

Electronic Programmable Controller

- Programmable settings by use of joystick and menu tree, or through a laptop via the user terminal software, or remotely through communication networks
- Easy to follow menu tree with 5 position entry joystick and 4 digit LED display
- Modular design for different Series 100, 200, 300 and 400
- Communication jack for Modbus RS485/RS232 signals
- Safe and reliable solid state design with no relays or arcing potential
- Controller is housed in a weather resistant enclosure mounted inside the battery box
- Easy to program desired flow conditions, measured in quarts/liters per day
- Ability to remotely monitor pump performance and view pump volume, battery voltage, charge amps, motor amps, motor speed, analog and digital inputs and outputs and many other parameters
- Multiple daily run programs including continuous, batch, or alarm driven
- Ability to program schedules, alarms, and input/outputs

Series 100 - Basic Model

- All the standard features of the Texsteam iCIP are included
- Programmable controller to obtain the desired output of expensive chemicals
- Set it and forget it - simple design - enter quarts/day or liters/day for the required flow
- Real time on-site operating conditions monitored through the controller

Series 200 - Data Logging Model

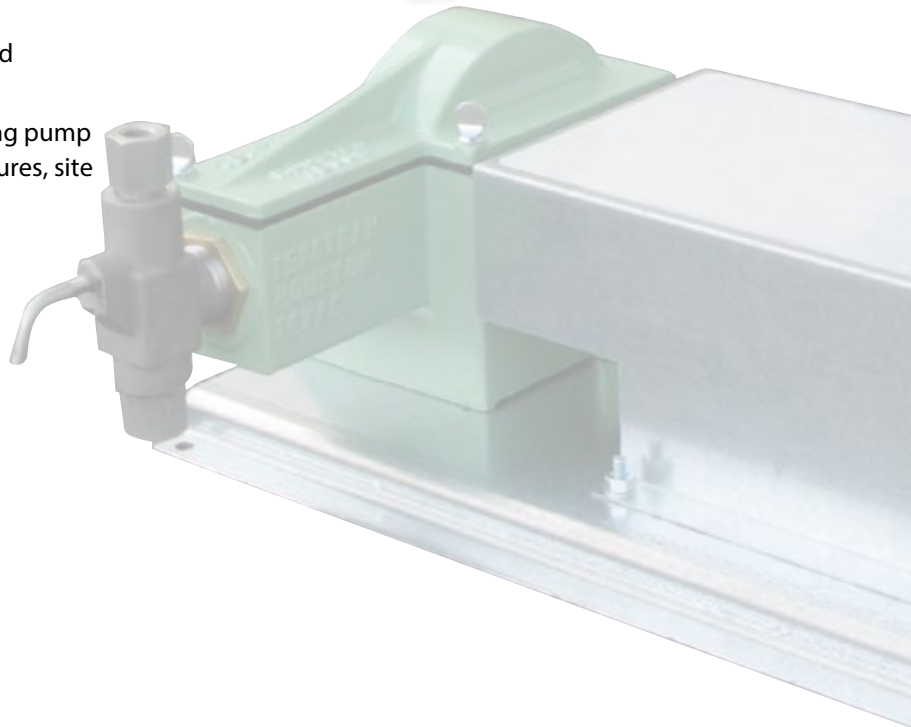
- Same basic features as Series 100
- Data logging capabilities with the ability to monitor, log, store and save pump and well operating data, alarms, and other conditions
- Ability to set the logging interval
- Great tool for capturing well and pump data and diagnostic
  - Download the data into an Excel* worksheet for analysis

Series 300 - Communications Model

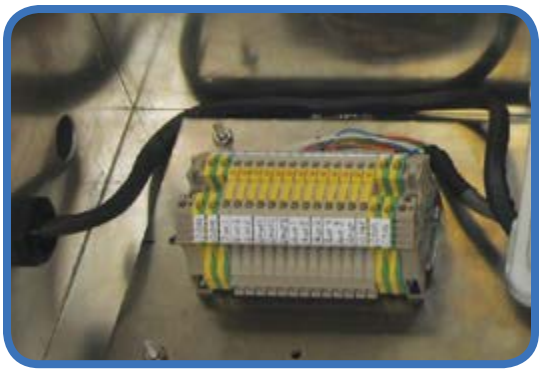
- Same features as the Series 100
- Remote communication capabilities via Modbus® protocol or SCADA
- Pump settings remotely monitored, controlled and programmed
- Pump and well site conditions monitored including pump flow and pressure, chemical tank levels, temperatures, site equipment and any other requirements
- Trips to well sites are reduced

Series 400 - Communications and Data Logging Models

- Full capabilities, benefits and features of the Series 100, Series 200 - Data Logging and Series 300 - Communications Models



* Excel is a trademark of Microsoft Corporation.



Options for Texsteam iCIP Pumps

- Available with alternate power source, 110 AC to 12 VDC or 24 VDC to 12 VDC
  - Intelligent Electric Chemical Injection Pump has all the features and benefits of the iCIP pump without the panels or batteries
- Analog and digital inputs and outputs available to gather external conditions and operational parameters
- Restart from motor overload fault. Consult Dresser Natural Gas Solutions for selectable parameters
- Temperature probe
- Ultrasonic tank level monitor
- Pressure transducer
- Flow meter
- H_2S sensor
- Lockout key switch
- On/Off switch

Head Size	Number of Heads	RPM Range		Volume Range Quarts (Liters) per Day		Pressure Range (psi)	
		Low	High	Low	High	Standard	High Pressure
3/16″	Single	5	45	1.75 (1.66)	26.31 (24.87)	0-5000	5000-7000
	Duplex	5	45	1.75 (1.66)	52.62 (49.79)	0-5000	5000-7000
	Triplex	5	45	1.75 (1.66)	73.93 (74.69)	0-5000	5000-7000
1/4″	Single	5	45	3.07 (2.91)	46.07 (43.61)	0-5000	0-5000
	Duplex	5	45	3.07 (2.91)	92.14 (87.190)	0-5000	0-5000
	Triplex	5	45	3.07 (2.91)	138.21 (130.79	0-5000	0-5000
3/8″	Single	5	45	11.52 (10.90)	103.68 (98.12)	0-1500	1500-3000
	Duplex	5	45	11.52 (10.90)	207.36 (196.23)	0-1500	0-1500
	Triplex	5	45	11.52 (10.92)	311.04 (295.35)	0-1500	0-1500
1/2″	Single	5	45	20.48 (19.38)	184.29 (174.43)	0-1000	0-1000
	Duplex	5	45	20.48 (19.38)	368.58 (348.80)	0-1000	0-1000
	Triplex	5	45	20.48 (19.38)	552.87 (523.10)	0-500	0-500

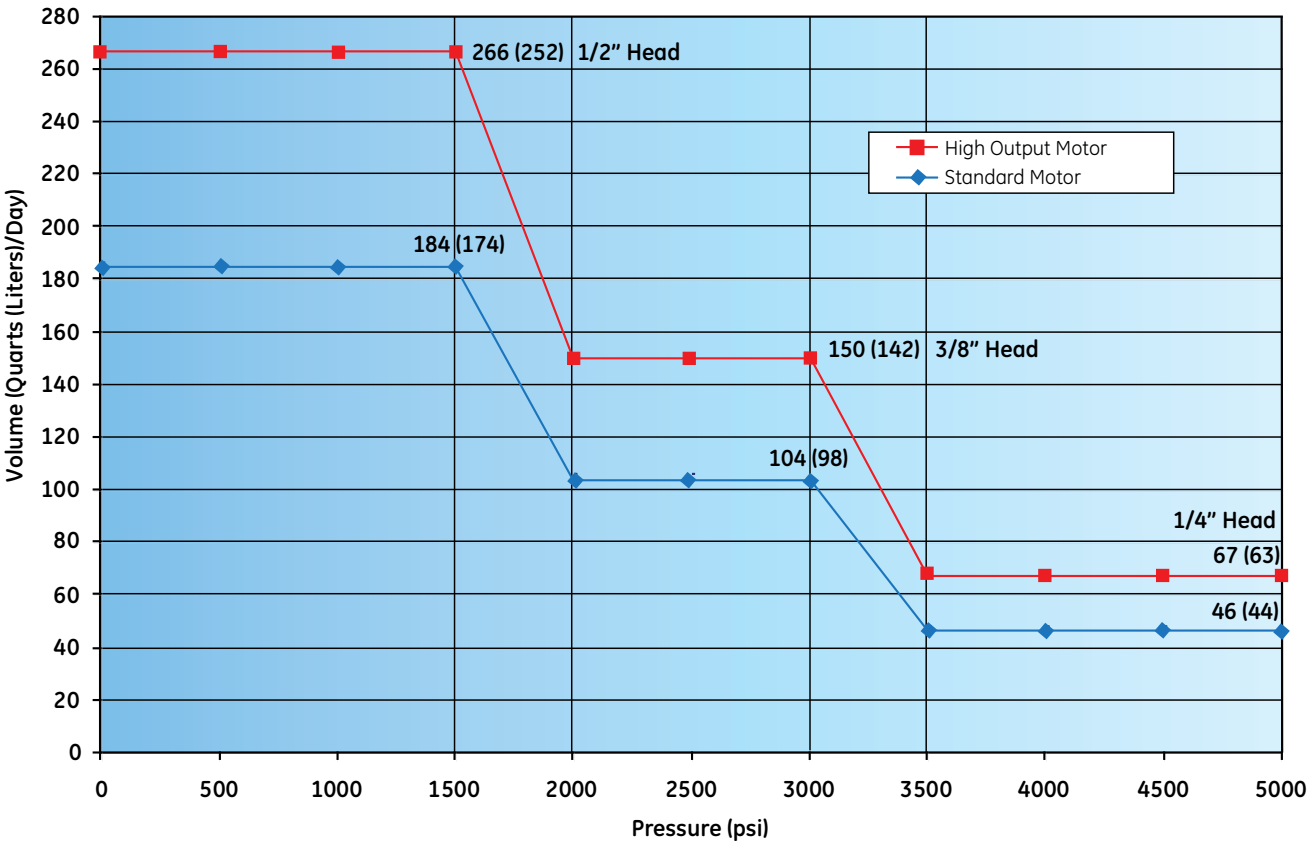
Texsteam HiCIP Pump

The Texsteam HiCIP solar-powered pump combines the intelligence of the iCIP solar pump with the ability to pump almost 800 quarts per day, 44% more volume per head than the standard iCIP pump. The HiCIP pump does the work of 2 to 3 lower volume pumps thereby reducing the cost of ownership. With only one pump running, maintenance expenses are reduced.

- 65 RPM motor allows for 44% more volume per head than the iCIP pump
- Variable speed continuous-duty brushless motor design
- Same features and benefits as the iCIP pump
- Available in Series 100, 200, 300 and 400
- Available in duplex and triplex configurations for volume requirements over 266.2 quarts/day
- Solar pump with the capacity of 798.6 quarts/day (199.65 GPD) with the triplex configuration

Head Size	Number of Heads	RPM Range		Volume Range Quarts (Liters) per Day		Pressure Range (psi)	
		Low	High	Low	High	Standard	High Pressure
3/16"	Single	5	65	2.9 (2.8)	38.0 (35.9)	0-5000	5000-7000
	Duplex	5	65	2.9 (2,8)	76.0 (71.9)	0-5000	5000-7000
	Triplex	5	65	2.9 (2,8)	114.0 (107.8)	0-5000	5000-7000
1/4"	Single	5	65	5.1 (4.8)	66.6 (63.0)	0-5000	0-5000
	Duplex	5	65	5.1 (4.8)	133.2 (126.0)	0-5000	0-5000
	Triplex	5	65	5.1 (4.8)	199.8 (189.0)	0-5000	0-5000
3/8"	Single	5	65	11.5 (10.9)	149.8 (141.7)	0-1500	1500-3000
	Duplex	5	65	11.5 (10.9)	299.8 (283.5)	0-1500	0-1500
	Triplex	5	65	11.5 (10.9)	449.4 (425.2)	0-1500	0-1500
1/2"	Single	5	65	20.5 (19.4)	266.2 (252.2)	0-1000	0-1000
	Duplex	5	65	20.5 (19.4)	534.4 (503.8)	0-1000	0-1000
	Triplex	5	65	20.5 (19.4)	798.6 (755.7)	0-500	0-500

Texsteam HiCIP Pump High Output Motor vs Texsteam iCIP Pump Standard Motor



Remote location in harsh environments are ideal applications for Texsteam Solar Pumps.

Texsteam SolarLite Pump

The Texsteam SolarLite solar-powered pump is an economical, easy to use, low maintenance chemical injection pump capable of pumping against pressures as high as 5,999 psi. It offers a high efficiency motor that at high pressures and flow rates requires less batteries and wattage to operate than a standard solar powered pump, providing a lower cost of ownership.

- Trusted reliable Dresser Natural Gas Solutions quality
- Simple set up and operation
- Dial controlled - variable speed capability to adjust flow rate by turning one simple knob
- High efficiency brushed DC gear motor or brushless DC gear motor
- High torque performance response as pressure fluctuates, pump speed remains constant
- Continuous injection provides even dispersion of chemical
- 3 controller indicator lights – Power, Motor Run/Stop, Fault
- Low battery protection
- High pressure shutdown
- Fusible protection at the battery connections
- Certified and approved to CSA (Canadian) and UL (USA) standards: Class I Division II Groups C & D
- Same pump unit as iCIP pump - 2200 series pump design utilizing Texsteam packing and plunger technology with years of proven reliability
- 316 SS heads standard – available in four head sizes – 3/16", 1/4", 3/8", and 1/2"
- Wide variety of available packing and o-ring materials for chemical compatibility
  - New SDP packing technology to solve all your compatibility problems
- Duplex pump-end configurations available (consult factory)
  - Both heads available with stroke adjustment option
- Lockable battery enclosure
- Available options and accessories
  - Temperature thermostat for methanol applications
  - On/Off switch
  - Lockout key switch
  - Alternative power supply - 110 AC to 12 VDC or 24 VDC to 12 VDC
- Complete package with all required components
- Standard Texsteam Pump warranty

Texsteam SolarLite Pump

Head Size	# of Heads	RPM Range		Volume Range Quarts (Liters) per Day		Pressure Range (psi)
		Low	High	Low	High	
3/16″	Single	5	45	2.92 (2.76)	26.31 (24.89)	0-5000
	Duplex	5	45	2.92 (2.76)	52.62 (49.79)	0-5000
1/4″	Single	5	45	5.12 (4.84)	46.07 (43.61)	0-3000
	Duplex	5	45	5.12 (4.84)	92.14 (87.19)	0-3000
3/8″	Single	5	45	11.52 (10.9)	103.68 (98.12)	0-1000
	Duplex	5	45	11.52 (10.9)	207.36 (196.23)	0-1000
1/2″	Single	5	45	20.48 (19.38)	184.29 (174.43)	0-500
	Duplex	5	45	20.48 (19.38)	368.58 (348.80)	0-500

Broad network of knowledgeable Texsteam Pump service dealers providing after-the-sale support.

Pumps are sized for each individual application based on volume and pressure parameters as well as the location's sun hours and temperature. Systems are sized for four days run time without sun.

Catalogs, technical manuals, and service and maintenance manual can be found by contacting Dresser Natural Gas Solutions directly at T: 832-590-2306 Toll Free: 1-800-945-9898


SolarLite

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Texsteam Solar Brochure NGS.IPG.0002
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