

## THE PRODUCTION TESTING ADVANTAGE

PSI Energy's focus is to safely test, monitor and control our clients' wells. In addition, once a well begins to produce oil and gas we manage our operations accordingly to enhance well productivity for profitability. This enables our clients to attain profit returns during the production phase of well completion and cleanup. Our equipment separates well effluent with precision so that oil may be shipped to storage tanks, loaded and sold directly from the well site. Additional benefits include:

- Produced well gas is controlled –flared or diverted to sales line or facility
- Fluid is separated, measured and shipped to proper storage containers
- All solids are contained in separate compartments of the pressure vessel, to ensure they are not mixed with clean fluids
- Inline testing systems reduce emissions
- Produced hydrocarbons, assisting with the well completion costs
- Safely flowback H2S gases
- Clean well bore after stimulation services safely and efficiently

## APPLICATIONS

PSI Energy provides an array of production testing and flowback services for well production through to completion, including:

- Production Testing
- Well Data Collection & Analysis
- Material Balanced Metering of Gas & Liquids
- Well and Pipeline Flaring
- Well Cleanups
- Single and Multi-Stage Frac Flowbacks (Screen-out and Frac Ball Recovery)
- Drill-out and Clean-out Support
- Circulation and Stimulation Flow Control
- Pipeline Cleanups
- Well and Pressure Bleed-Off

## WELL INTERPRETATION INFORMATION GAINED

- Permeability
- Skin Damage
- Reservoir Pressure
- Reservoir Boundaries
- Frac Length
- Forecast Production Deliverability



**PSI** ENERGY  
PRODUCTION  
SERVICES

## PRODUCTION TESTING SEPARATOR

PSI Energy's four-phase trailer mounted separator is designed to separate produced gas, water, oil and returned sand/ solids. Our "Testing Units" afford our operators the capability of continuous flow during well test, flowback, and pipeline operations with an accurate measure of water, gas and oil rates. Our Production Testing Separators are utilized in conjunction with a variety of flowback equipment as a Complete Package. Production Testing is a tried and proven method for the safe and profitable completion of new wells and stimulation of existing wells.

Our separators are equipped with various internal components that enhance the quality of each phase of separation. Through the removal of accumulated sand and solids, our separators are able to function at full volume capacity and maximize the fluid retention period crucial in the separation phases. In addition, our separators are equipped with sparging lines for lifting and agitating sand and solids to flush them through the drain lines, thus reducing the possible damage of downstream flow meters, instrumentation and process equipment.

These internal components include:

- Inlet Defusers
- Coalecers
- Weir Plates
- Mist Extracts
- Sparge Lines

PSI Energy's separators are equipped with advanced instrumentation, controllers and totalizers to provide our customers with accurate and consistent well data. The features include:

- Liquid Level Pressure Controllers
- Manual Control and Isolation Valves
- Measuring & Totalizer Meters

Our Production Testing Separators feature safety components including:

- LEL/ H2S gas detection light and strobe beacons
- Pressure Relief Valves

MTRs are electronically available for all piping/ equipment components of each Production Testing Unit, which are designed and fabricated to ASME and NACE code certified with MDR (UA1) stamp.



PSI Energy has a strict Zero Tolerance Standard Drug and Alcohol Policy  
PSI Energy is NCMS Registered & Compliant

## MECHANICAL FEATURES

High-Pressure High-Volume Four-Phase Separator (Water, Oil, Gas, and Solids Outlets). Water, Oil and Gas lines are designed with independent high-rate, low-rate and by-pass lines with measurement and control. Reference the data sheet on the back for details.

## ADDITIONAL INFORMATION

Production Testing Unit outfitted with:

- High-Pressure Fig. 1502 Choke Manifold (Sour Service PWHT - Reports and MTRs)
- Positive, Dual and Adjustable Choke Options
- 2" Fig. 1502 High-Pressure Flowlines (Sour Service PWHT - Reports and MTRs)
- 3" Fig. 206 Production Lines, Flare Lines, and Sales Lines (Sour Service PWHT - Reports and MTRs)
- Control Room Maintenance Workstation
- Propane Pigs
- Nitrogen Bottles
- Methanol Tank
- Emergency Shut Down (ESD) Pneumatic Valve Actuators
- Line Pipe Drip Trays
- Whip-check Safety Cables
- Fluid and Gas Line Signage

## DATA COLLECTION

Data Collection and reporting can be tailored to the clients needs. This includes: Formats, reporting schedule, and reporting types.

- Tubing PSI
- Casing PSI
- Choke Schedules & Sizes
- Produced Well Fluid Temperatures
- Produced Well Gas Temperatures
- Gas Meter Run Data and Analysis
  - Gas Rates
- Cumulative Gas Produced
  - Cumulative Flared Gas
- Cumulative Gas Diverted to Sales Line and/ or PPU Unit
- Gas Sampling and H2S Detection
  - Water Rates
- Cumulative Water Produced
- Water Produced to Water Left to Recover (Per Frac Pump Report)
- Water Salinity and PH Analysis
  - Sand (%) Content Returned
  - Oil Rates
- Cumulative Oil Produced



# PRODUCTION TESTING SEPARATOR

## DATA SHEET - MODEL TU-500

Description:	Four-Phase (Horizontal) High-Volume Trailer Mounted Separator
Nominal Vessel Size (DxL):	78" ID x 20' S/S / 198.12cm OD x 6.09 m S/S
Trailer Dimensions (LxWxH):	54' x 9' x 14'
Service Conditions:	H2S, CO2
Weir Height:	39" / 99.06cm
Operating Pressure:	(MAWP): 500 PSIG @ 400F (MDMT): -40F @ 500PSI
Maximum Gas Rate (low liquid level):	150 MMcf/d / 4.25 M Mm3/d
Maximum Liquid Rate (high liquid level):	42,000 Bbl/d / 5.0081 m3
Total Volume:	748 Cu. Ft.
Total Fluid Volume:	21.141m3 / 132.98 bbl
Inlet:	6" NPS CL300 RFHB 3-2"/ Hammer Union Fig. 1502 Female
Water Outlet:	3" NPS CL300 RFHB Flange/ 3" Hammer Union Fig. 206 Male
Gas Outlet:	4" NPS CL300 RFHB Flange/ 3" Hammer Union Fig. 206 Male
Oil Outlet:	3" NPS CL300 RFHB Flange/ 3" Hammer Union Fig. 206 Male
Drains:	3" NPS CL300 RFHB Flange/ 3" Hammer Union Fig. 206 Male
Steam Coil:	2" NPS CL300 RFWN
Sparge Line:	2" NPS CL300 RFWN
Vessel Manway:	24" CL300 RFHB Blind
Pressure Points:	Manifold, inlet, water, oil and gas lines
Temperature Points:	Manifold, inlet, water, oil and gas lines
Liquid Sampling Points:	Manifold, inlet, water, oil and gas lines
Water Measurement Equipment:	2" Turbine FLOWMETER EZ-IN Series
Oil Measurement Equipment:	2" Turbine FLOWMETER EZ-IN Series
	2" and 4" V-cone options
	MC 111 Analyzer
Gas Measurement Equipment:	Primary gas metering: 2 - Hawk 9500 gas turbines (1 gas mainline, 1 gas-oil bypass "sales line")
	Secondary gas metering: Calibration Barton Recorder with 3-pen static pressure/ temperature and differential pressure
Water Level Control Equipment:	2" Fail-closed pneumatic Norriseal level control valve with L2 level controller with displacer and sight glass
Oil Level Control Equipment:	2" Fail-closed pneumatic Norriseal level control valve with L2 level controller with displacer and sight glass
Chemical Injection:	CVS Series 500 Injection Pump
Gas Scrubber:	Regulated propane, N2 and well gas supply
Safety Devices:	LEL/ H2S gas detection light and strobe beacons
	4" Tyco Safety Relief Valve through vent line
Approximate Emptied Vessel Weight:	33,788 lbs.
Approximate Vessel Weight Full of Water:	48,895 lbs.
Total Test Unit Weight (loaded):	74,000 lbs.
Applied Codes:	ASME section 1, ASME VIII Div. 1
	NACE MR 0175
	PG-80
	UCS-79(d), UG-80
	DNV 2.7.1
	ISO 15156-2

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