

## Product Description

| <i>Quantity</i> | <i>Description</i>                                  |
|-----------------|---|
| 1               | 36" 1440psi 3-Phase Vertical Sour Separator Package |

Ex-works: Stettler, Alberta  
Loading and Freight to be arranged by client

## Delivery Time from Approved Drawings

- ▶ 2 to 3 weeks
- ▶ To be confirmed at issue of Purchase Order

## Payment Terms

- ▶ Net 30 days

## Additional Notes

- ▶ Quote valid 30 days
1. PSV is not sized for any specific process flowing conditions. Price subject to change based on sizing results
  2. No engineered control valve sizing completed. Control valve comes with standard port (trim) size (or largest available). Price subject to change based on sizing results.
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# Product Details

## Principal Vessel Connections

- ▶ 36" X 10'0" s/s 1440psi 3-Phase Vertical Separator
- ▶ MAWP 1440psi @ 130degF, MDMT -20degF @ 1440psi
- ▶ Corrosion Allowance 1/8", RT-1, PWHT, Sour service
- ▶ ABSA approved design and registered in Ab, BC, & Sask
- ▶ Built and certified to ASME "U" stamp standard
  - ▶ 6" 600# Inlet c/w 3" elbow diverter
  - ▶ 6" 600# Gas out connection
  - ▶ 2" 600# Water out connection
  - ▶ 2" 600# Condensate out connection
  - ▶ 2" 600# Drain connection
  - ▶ 2 – 3" 600# LC connections
  - ▶ 2" 600# PSV connection
  - ▶ 3" 600# HLSD connection
  - ▶ 3" 600# Inspection
  - ▶ 4 – 2" 600# LG connections
  - ▶ 2" 600# PI connection
  - ▶ 2" 600# TI connection
  - ▶ Internal float shield
  - ▶ 6"x9#/cu. Ft. Demister pad
- ▶ Mercer 8100 1" mnpt x 1" fnpt "E" orifice PSV (**note 1**)
  - ▶ WCB cs body & inlet base
  - ▶ Teflon seat, 316 ss disk & nozzle
  - ▶ Inconel x750 spring, sour gas service
  - ▶ Spring range 1226-1480psi
  - ▶ Set @ 1440psi
- ▶ Penberthy reflex and transparent level gauge w/ 330J valves
  - ▶ 1RM5-NE reflex level gauge w/ 330J gaugecocks
  - ▶ 1TM5-NE transparent level gauge w/ 330J gaugecocks
- ▶ WGI ½" npt 0-2000psi dual scale, liquid filled, 4" pressure indicator

## Inlet Piping and ESD Valve

- ▶ 3" 600# RF flange at skid edge

## ESDV Instruments

- ▶ None considered

## Sales Gas Process

- ▶ Canalta 3" 600# dual chamber meter run – new
  - ▶ AGA 2000 Ed., A216 WCB, left hand
  - ▶ Orifice plate – 3" x 1/8", 1.500, 316
  - ▶ OAL – 72"
  - ▶ Upstream: 600# RF, Downstream: 600# RF
  - ▶ Contour flow conditioner: Pin, 0.75 beta
- ▶ WGI ½" npt 0-250degF dual scale, 3" temperature indicator w/ ¾" npt thermowell
- ▶ 2" 600# Spool for future back pressure control valve
- ▶ 3" 600# RF flange at skid edge

## Liquid Process

- ▶ (2) Norrisal 1001A pneumatic liquid level controller
  - ▶ 2" npt, R.H. Mount
  - ▶ Snap, direct acting
  - ▶ 1-7/8" x 12" PCV vertical displacer
- ▶ (2) Norrisal 2220 2" level control valve (**note 2**)
  - ▶ 2" 600# RF body
  - ▶ 1.00" Quick opening trim
- ▶ ATO/Fail close
- ▶ 2<sup>nd</sup> Phase liquid process, 2" 600# RF flange at skid edge
- ▶ 3<sup>rd</sup> Phase liquid process, 2" 600# RF flange at skid edge
- ▶ Vessel drain, 2" 600# RF flange at skid edge
- ▶ **\*liquid piping designed for turbine meter, bypass and proving taps**

## Instrument Gas

- ▶ \*To be determined
- ▶ 1" npt fuel gas manifold w/ ¼" npt needle valves
- ▶ (2) CVS 67 regulator
  - ▶ ¼" npt tapped-bonnet type: 67cfr
  - ▶ 0-35psi, adjustable spring range
  - ▶ c/w tapped vented panel mount
  - ▶ Adj screw w/ closing cap
- ▶ WGI ¼" npt 0-160psi dual scale, liquid filled, 2.5" pressure indicator

## Heater

- ▶ CCI 24" x 24" Cata-dyne explosion proof heater
  - ▶ 12 Volt start w/ 30' cables
  - ▶ 11" W.C. Nat gas thermocouple & ASV375 valve
  - ▶ CSA approved
  - ▶ Fisher 912 regulator, grill, vent hood, temp control and accessories

### Support Skid

- ▶ 10'0" x 10'0" Structural steel skid
- ▶ W6@15 Main rails and vessel supports
- ▶ C5 Floor support
- ▶ 4 – Lift lugs
- ▶ 3/16" Checker plate floor area
- ▶ 2" Poly-urethane spray foam insulation under checker plate

### Building

- ▶ 10'0" x 10'0" x 10'0" H Shed style foam panel building
- ▶ 1.5" thick; 28Ga Polyurethane foam panels (R12); Galvalume (interior/exterior)
- ▶ (1) 3'x7' Foam panel door c/w
  - ▶ panic hardware (Von Duprin – model 44TP) c/w locking cylinder
  - ▶ 2'x2' GPW, check-chain, door sweep, mohair weatherstripping & butt hinges
- ▶ (1) 36"x36" Single glazed slider window c/w screen
- ▶ (2) 12"x12" stamped aluminum vents c/w manual sliders

### Valves

- ▶ 5 – Fusion 2" 600# RF RP ball valve, cs body ss trim
- ▶ 1 – MAS 1" npt 2000# RP ball valve, cs body ss trim
- ▶ 4 – MAS ¾" npt 2000# RP ball valve, cs body ss trim
- ▶ 2 – MAS ½" npt 2000# RP ball valve, cs body ss trim
- ▶ 2 – MAS ½" npt 2000# FP ball valve, cs body ss trim
- ▶ 1 – WGI ½" npt 6,000# needle valve, 316 cs body ss trim
- ▶ 3 – WGI ¼" npt 6,000# needle valve, cs body ss trim

### Piping Information and Notes

- ▶ Process piping as per ASME B31.3 specifications
- ▶ Welded pipe: 2" SA106B Sch 160 w/ 600# valves
- ▶ Welded pipe: 3"-6" SA106B Sch 80 w/ 600# valves
- ▶ Threaded pipe: SA106B Sch 160 with 2000# valves
- ▶ Flanges: SA105N
- ▶ Welded fittings: SA234-WPB
- ▶ Threaded fittings: SA105N, 3000#
- ▶ Tubing: 3/8" 316 SS welded 0.035 wall
- ▶ Tubing: ½" 316 SS welded 0.049 wall
- ▶ Tubing fittings: Swagelok SS
- ▶ All instruments vented to atmosphere
- ▶ All necessary valves, gauges, fittings and pipe included.
- ▶ Relief valves piped outside
- ▶ Piping to skid edge c/w individual connections
- ▶ Piping and instrument tubing securely supported
- ▶ Package is readied or dismantled only to the extent required for shipping

### Painting

- ▶ SSPC-SP3 Surface preparation
- ▶ Painted with Cloverdale grey phenolic primer and Cloverdale industrial enamel in light grey

### Quality Control/Testing

- ▶ Hydro tested to 1.5 times working pressure
- ▶ ABSA registered QC program, AQP#21172
- ▶ 100% B31.3 (normal) x-ray, PWHT as per specifications
- ▶ All instrumentation pneumatic tested and function tested

### Standard Drafting Terms

- a) General arrangement drawings, with one revision after customer markups, are included in the quoted price. If further changes or revisions are required after the first revision has been issued, extra charges for engineering and drafting are applicable.

## Terms & Conditions

1. Acceptance of the Purchaser's Order is expressly conditional on the purchaser's (or purchaser's Agent's) acceptance of the terms and conditions of sale. Any additional or different terms proposed by the buyer are not acceptable unless agreed to in writing by RARE Oilfield Services Corp.
2. The proposal is firm for 15 days from date of proposal, unless otherwise stated.
3. Delivery and delivery date shown is contingent upon strike, stoppage of labour, accidents, fire, flood, acts of God or of the public enemy, riots, civil disturbances, martial law, acts of government, shortages of fuel and of raw material, delays or stoppage of transportation or other caused beyond our control and in the event of such occurrences, seller may at its election cancel this order or any part thereof.
4. Warranty: RARE Oilfield Services Corp. passes on the manufacturers' warranty to the purchaser. RARE Oilfield Services Corp. does not in its own name underwrite the manufacturers' warranty. The liability of RARE Oilfield Services Corp. and purchasers' exclusive remedy in any cause of actions (whether in contract, tort, breach of warranty or otherwise) arising out of the sale of any products, supplies or materials is expressly limited to the manufacturer's warranty. In no event shall RARE Oilfield Services Corp. be liable for special, incidental, indirect, punitive or consequential damages.
5. Prices shown are in Canadian Dollars for product offered "Ex-Works" normal land conveyance, unless otherwise stated.
6. Cancellation of an order will result in a re-stocking fee of 25% to 100% of Full Purchase order price dependent upon stage project is at time of cancellation and supplier re-stocking fees; shop labour rates will be charged on accumulated hours on the project.
7. Title to materials in this contract remains with the seller until goods are paid for. The purchaser is responsible for loss or damage from the date of shipment. Purchaser / Customer agrees to carry full insurance coverage, such coverage to be at the Purchaser's / Customer's expense.
8. All taxes, unless shown otherwise, are extra.
9. Clerical or typographical errors are subject to correction.
10. All orders are subject to acceptance by RARE Oilfield Services Corp.
11. Warranty is void if products have been altered or repaired by anyone other than RARE Oilfield Services Corp. without written authorization.
12. RARE Oilfield Services Corp. may substitute for any make or model of product purchased from others with another make or model of equal quality without consent of the buyer.
13. Equipment remaining at the Point of Origin yard that remains in that yard beyond 60 days from completion date shall be subject to monthly storage fees (to be determined by RARE Oilfield Services Corp.) on the 61<sup>st</sup> day.