Item 7: VRU Electric Drive HB-HG10000HI-75-36DV

Design Conditions
Model: HB-HG10000HI-75-36DV
Type: HY-BON/EDI VRU standard design
Design: 60-120 MSCFD (based on the following conditions)

Suction Pressure:	0 psig	Discharge Pressure:	60-150 psig
Suction Temperature:	100 °F	Discharge Temperature:	120-140 °F
Specific Gravity:	SP. GRAVITY	"N" Value:	1.16-1.24 (assumed)
Elevation:	3000 fasl	Ambient Temperature:	100 °F

COMPRESSOR AND ASSOCIATED EQUIPMENT

J. Compressor: LeROI Model HG10000 single stage, rotary screw compressor – including 108 mm rotor compressor element. Compressor complete with the following:
   a. Lubricating Oil Filter
   b. Thermostatic by-pass valve.
   c. Gas-Oil separator, ASME Code stamped for 225 PSIG working pressure, separator complete with the following:
      i. Low Level Switch – Murphy Model LS200, SS trim, explosion proof, rated for 1500 PSIG working pressure,
      ii. 2" NPT connections.

K. Check Valves: Wheatley (or equal), carbon steel body and stainless steel trim, sizes as follows:
   a. Compressor Suction: 3"
   b. Compressor Discharge: 2"

L. Drive Assembly: Compressor to be belt driven via jackshaft, complete with coupling guard.

M. Compressor By-Pass: 1" Kimray Model 130-SMT-D single acting motor valve, ductile iron body w/high temperature trim and Teflon seat.

ELECTRIC MOTOR

B. TECO (or equal) 75 HP electric motor, 3600 RPM, 460/3/60 with 1.15 SF, Class F insulation, TEFC enclosure and adjustable motor slide base, suitable for use with variable frequency drive.

SCRUBBER

B. Suction Scrubber: 16" OD x 60" seam-to-seam, vertical single compartment standard scrubber. ASME Code stamped for 150 PSIG working pressure with 4" flanged inlet and 3" flanged outlet, 1" FNPT drain with 1" NPT ball valve with stainless trim. ASME Code stamped.
   a. Stainless steel mist extractor.
   b. High Liquid Level Switch: Murphy Model LS200 liquid level switch, SS trim, explosion proof, rated for 1500 PSIG working pressure, 2" NPT connections.
   c. Liquid Level Control: Murphy Model LS200 liquid level switch, SS trim, explosion proof, rated for 1500 PSIG working pressure, 2" NPT connection.
   d. Liquid Transfer Pump: Tuthill Model 2LE liquid transfer pump to automatically evacuate free liquids from the suction scrubber. Pump to be direct driven by ¾ HP, 1800 RPM, 460 V / 3 PHASE / 60 Hz, TEFC electric motor w/ guard over coupling.
   e. Sight Glass: 1/2" Penberthy Model N7 gauge cocks with tubular sight glass and guard.

HEAT EXCHANGER

B. Two section aerial fin fan type heat exchanger. ACE ASME code stamped heat exchanger. One section each for compressor oil cooler and discharge gas cooler. Fan driven by a 3 HP, TEFC electric motor, 460 V / 3 PHASE/ 60 Hz.

ELECTRIC CONTROLS

D. Motor Starter: NEMA 3R weatherproof panel, shipped loose for remote mounting in an unclassified area by others, complete with the following:
   a. Fused disconnect, with external safety handle.
   b. VFD Drive for compressor motor
   c. Dry type transformer, 250 VA, 460/120 volt.

E. Control Panel: Unit controlled by an Allen Bradley Micrologix 1400 Programmable Logic Controller, shipped loose. Complete with the following:
   a. 10" Allen Bradley PanelView interface to indicate status of the unit.
   b. On/Off Switch on panel exterior.
   c. Shutdown Indicators as follows:
      i. High Discharge Temperature
      ii. High Discharge Pressure
      iii. High Liquid Level – Suction Scrubber
      iv. Low Suction Pressure
      v. Low Compressor Oil Pressure
      vi. Motor Overload
      vii. Low Oil Level – Gas/Oil Separator
      viii. High Differential Pressure – Lube Oil Filters & Coalescing Filter
      ix. High Vibration – Compressor and motor
   d. Skid and panel prewired and tested. All wiring, conduit and fittings on skid are compliant with NEC latest edition (Class I, Division 2, Group D).

F. Electrical controls, local mounted except as noted:
   a. Suction Pressure Transmitter: Pressure Systems (or equal), 4–20 mA, explosion proof enclosure, SS trim.
   b. Pressure Transmitters: Pressure Systems (or equal), 4-20 mA, range as required for service. One each, furnished for High Discharge Pressure and Low Oil Pressure.
   c. Discharge Temperature Transmitter: Reotemp (or equal) temperature transmitter, explosion proof enclosure, 4-20 mA, SS thermowell.
   d. Differential Pressure Switch: Orange Research Differential Pressure Switches: to provide shutdown for high differential pressure across lube oil filters and coalescing filter.
   e. Vibration Transmitters: Metrix ST5491E velocity style vibration transducer

INSTRUMENTS & VALVES

I. Thermometers: S.S. case, with S.S. thermowell, range as required for service.
J. Pressure Gauges: S.S. trim, range as required for service.

FABRICATED STEEL SKID

B. One shop fabricated, heavy duty oilfield type skid, welded up from 5" and 6" steel channel sections and 2" pipe drawbar located on each end. Approximate skid size is 8' x 12'. 10,500# Skid is complete with deckplate, 2" environmental containment rail, trough-style side drains and 2" NPT drain connection.

DOCUMENTATION

B. Two electronic parts and operations manuals will be provided.

GENERAL CONSTRUCTION

F. All 2" and larger piping is 150# ANSI ASA flanged and welded per the requirements of the methods described by HY-BON/EDI's standard shop welding procedure, as qualified per ASME, Section IX.
    a. Piping is air leak tested, hydrostatic tested and x-rayed per ASME B31.3.
G. Scrubber and suction piping internally plastic-coated with Corvel 1660 for protection against corrosion caused by CO2 and H2S.
H. Components assembled and unitized per all applicable codes, on skid and shop tested with air.
I. HY-BON/EDI standard equipment may contain parts from different manufacturers than called out above. Any alternate parts will be of equal or greater scope.
J. Unit to be cleaned, primed, and painted, final color Desert Tan.
K. NOTE: Personnel protection in the form of insulation blankets provided around all piping and valves in excess of 140° F