
Date : _____

Manager,
Kemaman Palm Oil Mill,
24050 Kemaman,
Terengganu.

RE: QUOTATION FOR DESIGN, MANUFACTURE, GUARENTEE, DELIVER TO SITE, INSTALLATION, TESTING AND COMMISSIONING OF ONE (1) UNIT 45 m^3/hr THERMAL DEAERATOR FOR 45 TPH BOILER AND OTHERS ANCILLIARILIES WORKS AT KEMAMAN PALM OIL MILL, KEMAMAN, TERENGGANU.

Item	Description	Qty.	Rate	Amount (RM)
1.	To provide preliminaries items as listed below: i. Contractor all risk and third-party liability insurance ii. Worker's workmen compensations insurances iii. Housekeeping iv. Mobilization and demobilization			
2.	To design, manufacture, guarantee, deliver to site, installation, testing and commissioning of one (1) unit 45m ³ /hr Thermal Deaerator: i. Flow rate: 45 m ³ /hr ii. Make-up water: 40 m ³ /hr (Aprox.) iii. Type: Spray Header (tray type) and storage vessel of mild steel construction iv. Storage capacity below: 12.5 m ³ normal working level v. Storage capacity below: 13.2 m ³ Overflow level vi. Design Pressure: 3.0 kg/ cm ² vii. Operating Pressure: 0.35 kg/cm ² G			

	viii. Temp of Inlet Water: 60⁰C - 70⁰C (assumed) ix. Temperature of Outlet Water: 105 ⁰C x. Water Quality: Less than 0.03 mg/litre under continuously running for 4 hours at constant capacity. xi. To obtain Design, Installation and Operation approval from Department of Occupational Safety and Health (DOSH) Malaysia. <u>SCOPE OF SUPPLY:</u> <u>Deaerator Header</u> One (1) unit deaerator stainless steel spray header Dimension : 1100 mm Ø x 1220 mm SL, stainless steel c/w integral vent Condenser, spray pipe and spray nozzle, stainless steel tray Design pressure: 3.0 kg/cm2 <u>Accessories & nozzles</u> a) One (1) set spray tray assembly, stainless steel b) One (1) set spray valve c) One (1) unit water inlet 80 mm Ø (make-up) nozzle d) One (1) unit 25 mm Ø nozzle for vent pipe e) Six (6) unit 80 mm Ø breather nozzle <u>Deaerator storage vessel</u> One (1) unit deaerator storage vessel including accessories and nozzles. i. Dimension: 1940 mm Ø x 4880 mm SL, carbon steel, 15.6 m3 ii. Design pressure: 3.0 kg/cm2 iii. One (1) unit steam inlet stainless steel diffuser piping 300 mm Ø c/w carbon steel scrubbing chamber iv. Two (2) unit 40 mm Ø for level indicator nozzle v. One (1) unit 150 mm Ø water outlet vi. Two (2) unit 40 mm Ø nozzle for level control vii. One (1) unit overflow 100 mm Ø nozzle viii. Two (2) unit high/low level switch nozzle ix. One (1) unit 80 mm Ø drain nozzle			
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	x. Two (2) unit 15 mm Ø nozzle for sample and drain xi. One (1) unit 65 mm Ø for pressure relief valve Control valve and fittings a) Inlet control valve One (1) unit stainless steel ball valve 50 mm Ø c/w pneumatic actuator and positioner One (1) unit Yokogawa differential pressure transmitter for inlet water control One (unit) Chino controller for inlet water control (modulating) b) Steam regulating valve (PRV) c/w by-pass valve One (1) unit pressure regulating valve Size: 100 mm Ø Make: ARI Setting: 4.0/0.35 kg/cm² Material: Cast iron c) Others One (1) unit 80 mm Ø drain gate valve, type: cast iron One (1) unit 65 mm Ø spring load relief valve, made: LESER/ARI One (1) unit 150 mm Ø outlet valve, gate type, cast iron One (1) unit water level gauge c/w isolating valve and gauge cork Two (2) unit high/low level float switch One (1) unit 150 mm Ø dial type thermometer One (1) unit 150 mm Ø pressure gauge c/w isolating valve One (1) unit 25 mm Ø vent stainless steel ball valve c/w orifice plate and vacuum breaker One (1) unit 15 mm Ø stainless steel ball valve for drain and sample One (1) unit of air compressor Painting for all vessel Internal Painting: Heat resistant apexior paint External Painting: Heat resistant aluminium paint			
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	Deaerator booster pump set 2 nos (1 running, 1 standby) of deaerator booster pump set Model: Align EA 50/20 AC AA1 0B Capacity: 45 m³/hr Head: 40 m Rpm: 2900 Motor: 11 kW, 2900 rpm, TEFC SC, 415V/3ph/50Hz Insulation come with aluminium cladding for deaerator Insulation Material: Rockwool slab 50mm thk Cladding Material: 0.7mm thk aluminium sheet Interconnecting piping to thermal deaerator •From deaerator feed tank to deaerator feed pumpset •From deaerator feed pumpset to deaerator, max 12 m apart •From deaerator outlet pipe of 12 m long c/w installation of one (1) unit isolating valve 150 mm Ø •Steam inlet pipe 6 m long max. 100 mm Ø c/w steam pressure reducing valve station pipework Piping materials: GI “B” Pipe for water API SCH40 CS Pipe for steam			
3.	Civil & Structure Works Support Structure Support structure of 8m height come with platform, staircase, handrail and safety ring for Thermal Deaerator Height: 8000 mm Painting: One (1) coat of zinc phosphate primer followed by one (1) coat of MIO paint All design and installation of civil foundation work to be included.			
4.	Electrical Works Electrical Installation work for thermal deaerating system Note: To include with incoming power supply cabling works			

5.	Installation, Testing & Commissioning				
6.	Others (if any & to be specified)				
	Interested Manufacturers which are Registered as Manufacturer of unfired pressure vessels with the Department of Occupational Safety and Health (DOSH) Malaysia is required to attend a COMPULSARY site visit at Kemaman Palm Oil Mill, Kemaman, Terengganu before submitting their completed quotation documents.				
	Total Contract Price (RM)				

Amount in words:

Completion Period: _____ weeks

NAME: _____ CHOP/STAMP:

ADDRESS: _____

 _____ SIGNATURE:

DATE: _____