

**AGREEMENT
FOR SUPPLY , ERECTION & COMMISSIONING
FOR
100 TPD CONTINUOUS SOLVENT EXTRACTION
PLANT FOR SOYBEAN SEED OIL**

TO,
RAJMANYA AGRO
KIND ATTN.: MR. DABHADE
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COMMERCIAL OFFER

SECTION-1 (MAIN PLANT)

SR. NO.	DESCRIPTION	AMOUNT (IN INR) FOR 100 TPD
1.	PROCESS HOUSE :- 100 TPD CONTINUOUS SOLVENT EXTRACTION PLANT <ul style="list-style-type: none"> • CONTINUOUS PREPARATORY SECTION • CONTINUOUS SOLVENT EXTRACTION SECTION • CONTINUOUS MEAL CONDITIONING SECTION 	4,68,00,000.00
2.	TECHNICAL SUPERVISION & COMMISSIONING	12,65,000.00
3.	ERECTION & PIPING	34,00,000.00
	TOTAL AMOUNT IN WORDS – FIVE CRORE FOURTEEN- LACKS SIXTY - FIVE THOUSAND INDIAN RUPEES ONLY Note – EX-WORKS, NAVI-MUMBAI, Maharashtra	5,14,65,000.00 + 18% GST EXTRA

SECTION-2 (UTILITIES)

SR. NO.	DESCRIPTION	AMOUNT (IN INR)
1	COOLING HOUSE & PUMPING SECTION	19,50,000.00
2	COMMON UTILITIES: 1. WATER SOFTNER (ION EXCHANGE MAKE) 2. STEAM BOILER (THERMAX MAKE) With Accessories. • 2000 KG/HR	58,50,000.00
3	MAIN DISTRIBUTION PANEL WITH CAPACITOR BANK & CABLES ETC	24,50,000.00
4	HOT & COLD INSULATION AND PAINTINGS (FOR PAINTING MATERIAL WILL BE SUPPLIED BY CLIENT)	26,00,000.00
5	TECHNICAL SUPERVISION, ERECTION & COMISSIONING	5,05,000.00
	TOTAL AMOUNT IN WORDS- ONE CRORE THIRTY THREE LACKS FIFTY FIVE THOUSAND INDIAN RUPEES ONLY . Note – EX-WORKS, NAVI-MUMBAI, Maharashtra	1,33,55,000.00 + 18% GST EXTRA

SECTION-3
(BUILDING STRUCTURE, STORAGE & WAREHOUSE)

SR NO	DESCRIPTION	TOTAL AMOUNT (IN INR)
1	SUPPORTING & BUILDING STEEL STRUCTURE for without Roof & Covering Sheets MAIN EXTRACTION PLANT - 25 Mtrs X 10 Mtrs X 15 Mtrs BOILER HOUSE – AREA 10 Mtrs X 10 Mtrs X 10Mtrs PREPARATORY - 20 Mtrs X 40 Mtrs X10 Mtrs DOC GODOWN - 20 Mtrs X 40 Mtrs X 8 Mtrs (Note – will be fabricated at site)	1,36,00,000.00
2	BULK STORAGE TANKS (will be fabricated at site) 200 MT – 2 NO’S Including Pumps, Pipelines & electrification	37,50,000.00
3	INTERMEDIATE TANKS 30 KL M.S. WATER OVERHEAD TANK FOR BOILER WITH PIPELINES & FITTINGS 24 KL x 3 nos Hexane Tanks	15,32,500.00
4	TECHNICAL SUPERVISION & COMISSIONING	2,25,000.00
5	ERECTION & FABRICATION	5,00,000.00
	TOTAL - AMOUNT IN WORDS - ONE CRORE NINETY- SIX LACKS SEVEN THOUSAND FIVE HUNDRED INDIAN RUPEES ONLY. Note – EX-WORKS, NAVI-MUMBAI, Maharashtra	1,96,07,500.00 + 18% GST EXTRA

SECTION 4
BUDGETARY COST
AUXILLARY REQUIRED FOR 100 TPD SEP PLANT

SR. NO.	DESCRIPTION	AMOUNT (IN INR)
1.	100 MT WEIGHT BRIDGE	11,40,000.00
2	GENERAL PURPOSE LABORATORY SETUP with Chemicals	21,00,000.00
3	PAINTING MATERIALS	8,00,000.00
4	ROOF & COVERING SHEETS	20,00,000.00
5	CIVIL WORK for PROCESS HOUSE BOILER HOUSE COOLING HOUSE STORAGE TANKS INCLUDING ROOF SHEETS	70,50,000.00
6	TRANSPORTATION	9,50,000.00
7	LOCAL ACCOMMODATION FOR OUR TWO ENGINEERS ONSITE ACCOMMODATION FOR CREW	5,00,000.00
8	ELECTRICALS (200 KVA Generator, Transformer & Building Lights)	35,00,000.00
9	GOVERNMENT APPROVALS	4,00,000.00
10	LUBRICANTS FOR COMMISIONING	2,00,000.00
11	FIRE FIGHTING SET UP	34,00,000.00
12	UNSEEN & MISCELLANEOUS	10,00,000.00
	TOTAL - AMOUNT IN WORDS - TWO CRORE THIRTY LACKS FORTY THOUSAND INDIAN RUPEES ONLY. NOTE – EX-WORKS, NAVI-MUMBAI, MAHARASHTRA	2,30,40,000.00 + 18% GST EXTRA

SUMMERY

SR NO	DESCRIPTION	TOTAL AMOUNT (IN INR)
1	SECTION 1- MAIN PLANT & MACHINERY (SEP)	5,14,65,000.00
2	SECTION 2- UTILITIES	1,33,55,000.00
3	SECTION 3 – BUILDING STRUCTURE (Process Houses), STORAGE & WAREHOUSES	1,96,07,500.00
4	SECTION 4 – BUDGETARY COST AUXILLARY REQUIRED FOR 100 TPD SEP PLANT	2,30,40,000.00
	TOTAL AMOUNT	10,74,67,500.00
	18% GST	1,93,44,150.00
	GRAND TOTAL - TWELVE CRORE SIXTY EIGHT LACKS & ELEVEN - THOUSAND SIX HUNDRED FIFTY INDIAN RUPEES ONLY. NOTE – EX-WORKS, NAVI-MUMBAI, MAHARASHTRA	12,68,11,650.00

TERMS FOR ERECTION & COMMISSIONING OF THE PLANT

1. BUYER WILL PROVIDE FOOD, ACCOMMODATION AND LOCAL TRANSPORT FOR THE ENGINEER DURING PERIOD OF WORK.
2. PEMAC WILL DEPUTE EXPERIENCE ERECTION & COMMISSIONING STAFF OF 1 ENGINEER & 10-12 TECHNICIANS FOR PIPING & MECHANICAL WORK UNTIL COMPLETION OF PROJECT.
3. PEMAC WILL ALSO PROVIDE ELECTRICIAN & OTHER SPECIAL TECHNICIANS AS PER REQUIREMENT.
4. PEMAC WILL PROVIDE ALL REQUIRED TOOLS, TACKLES & CONSUMABLES
5. BUYER HAS TO ARRANGE SKILLED STAFF FOR RUNNING THE PLANT ON CONTINUOUS BASIS FROM THE TIME OF TESTING ONLY. SO THAT PEMAC ENGINEER WILL TRAIN THEM & HANDOVER.
6. CRANE REQUIRED FOR ERECTION WILL BE IN CLIENT SCOPE.

HAND OVER

The plant will be handed over to the buyer in seven days from the date of commissioning. With,

- A. COMMITTED FINISHED PRODUCT QUALITY**
- B. COMMITTED PRODUCTION CAPACITY**
- C. COMMITTED CONSUMPTION OF UTILITIES**

In case the buyer is not able to supply adequate quantities of raw material and chemicals, performance of individual equipment will be shown and the plant will be handed over to the buyer. The buyer is expected to put the plant to commercial use only after settling all the dues of the seller and issuing a formal completion certificates. The seller's guarantee of the plant will be inoperative if the plant is put to use without formal taking over.

TERMS AND CONDITIONS

- The above prices are **EX-WORKSHOP, NAVI-MUMBAI, MAHARASHTRA..**
- Any License or Permission applicable on the works carried out, in the country/state where the Project is implemented under works contract, shall be manage by the PURCHASER'S side.
- **PAYMENT TERMS:**
 - 40 % As an Advance,
 - 60 % Against Performa-invoice.
- **EFFECTIVE DATE:**

Unless specifically agreed otherwise, the effective date of the purchase order shall be the later of dates on which-

 - a. Receipt of technically and commercially clear Letter of Intent/Order
 - b. Receipt of Advance Payment as per mutually agreed payment terms.
- **INSPECTION:** Third Party/ Visual inspection of equipment at our works/ our sub-Vendors shall be offered wherever mutually agreed. The supplier shall give 10 days' notice to the purchaser for Third Party/ visual inspection. In case it is not possible for the purchaser to be physically present for the inspection on the appointed date the supplier shall dispatch the material as if the materials are deemed to have been inspected and the purchaser expressly do hereby aggress to release the payment as per the payment terms specified herein.
- **DELIVERY:** As per finalization PEMAC will supply all equipment's within a period of 4 to 6 months, from the date of clear order and advance received.
- **Offer Validity: 30 days.**

FOR RAJMANYA AGRO,



(Director)

In Presence of,

BASIS OF DESIGN

GENERAL SPECIFICATIONS

Materials

Materials specified are generally high-grade carbon steel or cast iron. Stainless steel quality is of type 304 and acid resistance steel will be of type 316.

Electrical conductors will be armored aluminum cables for power cabling and unarmored copper cables for instrument wiring. Earthing will be of galvanized iron or wire for indivisible electrical equipment.

Electrical motors are of total enclosed fan cooled (TEFC) type protection class IP 54/55, Foot mounted or Flange mounted design.

Insulation will be of performed rock wool sections / slabs or loose material, cladded with aluminum sheet.

Paint on carbon steel surface will be two coasts of zinc oxide primer along with two coasts of synthetic enamel.

No painting on stainless steel / insulated surfaces.

DESIGN STANDARDS

All pressure vessels are designed to ASME boiler pressure vessel code section VIII, DIV. I 1995.

Electrical designs are as per Indian electricity rules.

Makes of equipment considered in this offer are our standard scope of supply. Equivalent or suitable alternative makes other than those considered will also be used if necessary, depending on the availability and delivery period.

FABRICATION STANDARDS FOR PROCESSING EQUIPMENTS

1. STAINLESS STEEL EQUIPMENTS

MOC

– SS 304L

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SHELL THICKNESS	– 5/6 MM
DISH/CONE THICKNESS	– 6 MM
HEATING COILS	– SEAMLESS SCH 10
COOLING COILS	– ERW SCH 10
DRIVE ARRANGEMENT	– SS 304L
LANTERN SUPPORT	- MS
STIFFENERS	- MS ANGLE/CHANNEL ETC.
LUG / LEG SUPPORT	– MS
LIFTING HOOK	– PROVIDED
FLANGES	– MS ASA 150
VISIFLOW GLASSES	– TOUGHEN 16 MM

2. MILD STEEL EQUIPMENTS

MOC	– MS
SHELL THICKNESS	– 6 MM
DISH/CONE THICKNESS	– 6 MM
HEATING COILS	– SEAMLESS SCH 10
COOLING COILS	– ERW SCH 10
DRIVE ARRANGEMENT	– MS
LANTERN SUPPORT	- MS
STIFFENERS	- MS ANGLE/CHANNEL ETC.
LUG / LEG SUPPORT	– MS
LIFTING HOOK	– PROVIDED
FLANGES	– MS ASA 150
VISIFLOW GLASSES	– TOUGHEN 16 MM

3. SHELL AND TUBE HEAT EXCHANGERS

MOC TUBES	– SS 304L, 14G
MOC BODY	– SS /MS AS PER APPLICATIONS
BAFFELS	– SS 304L
TUBE SHEET	– SS 304L

TECHNICAL SPECIFICATIONS AND SCOPE OF CONTINUOUS PREPARATORY SECTION

ITEM	QTY	DESCRIPTION
BE-1	1	<p>BUCKET ELEVATOR To carry incoming seeds to the pre-cleaner Capacity – 5 TPH Bucket –2 mm thk. duly stiffened at mouth 12 x 3 flat. Gear Box – 4” Motor – 5 HP/1440 RPM Make – PEMAC</p>
DS	1	<p>DAY BIN Conical bottom cylindrical silo, to insure continuous stream of feeding to the further process Capacity – 100 MT MOC – M.S. (8/6 mm thk)</p>
BE-2	1	<p>BUCKET ELEVATOR To carry incoming seeds to the Day Silo Capacity – 5 TPH Bucket –2 mm thk. duly stiffened at mouth 12 x 3 flat. Gear Box – 3” Motor – 7.5 HP/1440 RPM Make – PEMAC</p>
SCL-1	1	<p>SEED CLEANING MACHINE WITH ASPIRATION UNIT (7 TPH) For the separation of impurities, foreign matter & dust from the seed. Complete with drive accessories. Comprising: A. Right steel frame B. Sieve with cleaning arrangement C. Oscillating feeder D. Motors 3 HP / 1440 rpm- 1 no. 7.5 HP / 1440 rpm- 1 no. BLOWER Rotary Valve – GB - AS 20P 37.71 /Motor – 0.5 HP/960 Make – FOWLER WESTRUP</p>
DST-1	1	<p>GRAVITY SEPARATOR CUM DE-STONER WITH ASPIRATION UNIT With vibratory feed, Blower, Cyclone, Rotary air seal and ducting BLOWER – 7.5 HP / 1440 RPM – 1no. MOTOR – 3 HP/ 1440 RPM – 1 no. ROTORY VALVE – GB - AS 20P 37.71</p>

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		MOTOR – 1 HP/960 RPM Make – BHULLER
BE-3	1	BUCKET ELEVATOR To carry cleaned seeds to the sheller Capacity – 5 TPH Bucket –2 mm thk. duly stiffened at mouth 12 x 3 flat. GEAR BOX – 3” MOTOR – 5 HP/1440 RPM Make - PEMAC
CRK-1	1	CORRUGATED ROLLER MILL Roller mill stand in welded steel construction with large access inspection Doors in front and at the rear. The rolls run on self-aligning roller bearings. The roll settings are adjusted by means of threaded spindles. Adjustable safety device prevent the roll from striking so that the rolls do not run together .The rolls are provided with proper size of cup springs for protection against foreign materials passing through the rolls. Each Roller Mill Comprises : A. Roller 250 mm Diameter x 1100 mm in length. Chilled cast iron in horizontal position with corrugated surface. B. Motor 15 hp 960 rpm – 2 NOS ROTARY FEEDER – Gear Box - AS 20P 14 MOTOR – 1 HP/1440 RPM Make – PEMAC
BE-4	1	BUCKET ELEVATOR To carry cracked seeds to the conditioner Capacity – 5 TPH Bucket –2 mm thk. duly stiffened at mouth 12 x 3 flat. Gear Box – 3” Motor- 5 HP/1440 RPM Make – PEMAC
D-HULL-	1	DE-HULLER WITH PNEUMATIC ASPIRATION SYSTEM The Machine is capable to separate meat and hulls equipment complete with Beater & Blower: A. Beater chamber: Complete with the 10 Nos. of Spiked rotating beater, suitable perforated sheet tube, suitable speed reduction gear and all drive items. MS tray complete with suitable perforated sheet and high efficient mounting supports with 2 Nos. of outlet, one for the meat and the second for large hulls and un-cut seeds. B. Aspiration system with following accessories: Blower with electric motor and all drive items. Huller pick-up nozzle air control, pipeline, bend, reducer, and all transit pieces. Cyclone collector, all drive items and all required accessories. Make – FOWLER
BE-5	1	BUCKET ELEVATOR To carry cracked seeds to the conditioner Capacity – 20 TPH

		<p>Bucket –2 mm thk. duly stiffened at mouth 12 x 3 flat. Gear Box – 3” Motor- 7.5 HP/1440 RPM Make – PEMAC</p>
COK-1	1	<p>SEED COOKER / CONDITIONER Make - PEMAC A vertical cylindrical multi stage vessel in welded mild steel construction for cocking and tempering of seeds prior of Flaking. Indirect steam heating is provided through double bottom plates in each stage. A propeller shaft with propeller arms ensures movement of material from top to bottom stage and comprising</p> <ul style="list-style-type: none"> A. Cylindrical shell in welded steel stage : 1800 MM Dia. x 5 stage B. Recessed double bottom in all stages. Thickness of double 12&14MM C. Float operated doors in each stage. D. Level Indicators E. Live steam injection device. F. Center Reduction Gear Box. B3SV11, fluid coupling SM6 internal hub, multi crowned toothed gear coupling – EV-3200 G. Electrical Motor: 30 HP/TEFC. 1440 RPM H. Plate thickness of shell – 8 mm
BE-6	1	<p>BUCKET ELEVATOR To carry cracked seeds to the conditioner Capacity – 5 TPH Bucket –2 mm thk. duly stiffened at mouth 12 x 3 flat. Gear Box – 3” Motor- 5 HP/1440 RPM Make – PEMAC</p>
FLK-1	1	<p>FLAKING MILLS : (HYDRAULIC SYSTEM) Make - PEMAC For Flaking cracked soybean after tempering each comprising</p> <ul style="list-style-type: none"> A. A heavy duty side stand of welded steel construction connected by rigid rectangular frames B. Pairs of plain Chilled Cast Iron Rolls size: 600 MM x 1300 MM Placed in horizontal position. C. Roll runs on heavy double row self-aligning roller bearings. D. Bearing Housing of one roll is firmly fixed to the frame while those of the other roll can swivels around a heavy pin. E. Hydraulic Cylinder pump pressure controller for adjusting F. Electric Motor: 2 No. 60 HP/TEFC. 1440 RPM G. Rotary Feeder GB – AS 20 P 14 Motor – 1 hp / 1440 rpm
EX-1	1	<p>8” EXPANDER MODEL- SSIE EXP 400 AR1 MAKE – RURIS</p> <p>For Processing 100 TPD on Soya Seed flake, (complete in all respects with harden sleeves entire length of the barrel of the Expander And all helicoids except No. 1 duly hardened</p>

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		with standard shafts arrangement, Insert type cutter bolts auto run (AR1) assembly with power pack along with Pulleys Couplings, Electrical Accessories, etc. With 60 HP Motor & Gear Box for the Above.
FLC-1	1	<p>FLAKE COOLER</p> <p>In M.S. Construction for Cooling Flacks, Fan Drying module equipped with suitable capacity fan blowing, cooling module with suitable air blower provided for blowing cold air</p> <p>Plate Thickness: 4 MM</p> <p>Width : 1000 MM</p> <p>Length : 5000 MM</p> <p>5 HP / 1440 RPM - 2</p> <p>3 HP/ 1440 RPM - 2</p> <p>1 HP/ 1440 RPM - 2</p> <p>Make - PEMAC</p>

TECHNICAL SPECIFICATIONS AND SCOPE OF CONTINUOUS SOLVENT EXTRACTION SECTION

ITEM	QTY	DESCRIPTION MAKE - PEMAC
RV-1	1	<p>ROTARY AIRLOCK VALVE In M.S. Construction for air tight feeding of the raw material to the Extractor. Drive from the feeding conveyor drive.</p>
PE-2	1	<p>FEED HOPPER In M.S. Construction fitted above Extractor at feed and with light and sight – glasses plate thickness : 6 MM.</p>
PE-2A	1	<p>LEVEL CONTROLLING UNIT FOR FEED HOPPER Fitted in extractor feed hopper with actuating lever</p>
PE-3		<p>CONTINUOUS EXTRACTOR In M.S. Construction Horizontal model Continuously operating Extractor Comprising.</p> <ul style="list-style-type: none"> A. Micro-switch operated Indicator for level control in the feed hopper. B. Articulate band conveyor Assembly. Extractor casting with steel plate of gas collecting hoppers, manholes for Maintenance and assembly. C. Rails for movement of band conveyor. D. Main sprocket on which the band Conveyor ride. E. Tensioning device for band conveyor chain. F. Stainless Steel Mesh. G. Light and sight glass Assembly. H. Miscella spraying stages. I. Fresh Solvent Spraying Stages. J. The drive unit with chain sprocket, worm gears, helical gear reducers, variable K. Discharge mechanism with discharge receiving hopper. L. Material of Construction. <ul style="list-style-type: none"> Feed Hopper. M.S. Extractor casing. M.S. Miscella Hopper. M.S. M. Cross Section of Bed : 1200 MM Number of sprayers : 7 No's N. Flame proof motor : 3 HP/ 1400 RPM Gear Box (with VFD) : 8" x 4" CD O. Plate thickness.

		<p>Base and side. : 8 MM</p> <p>P. Hopper and Top : 6 x 5 MM</p>
PE-3A	1	<p>DRUM SHAFT</p> <p>In M.S. Construction with blade to discharge the material from Extractor Uniform flow to Solvent tight Conveyor. With Flame proof motor 3 HP/1440 RPM. And Gear Box 3" CD.</p>
BF-5		<p>SOLVENT TIGHT CONVEYOR</p> <p>In M.S. Construction for conveying wet Extracted material from spent meal discharge hopper to the rotary valve above the De-solventizer Gas tight design. Comprising.</p> <ul style="list-style-type: none"> A. Conveyor. B. The driving head section with driving shaft, bearing Mechanical seals, chain wheel etc. C. The conveying chain. D. The tensioning head with chain tensioning device. E. Flame proof Motor: 10 HP / 1440 RPM. F. Gear Box : 5" G. Drain nipple with flange in the bottom part for draining the solvent if any H. Plate thickness : 6 MM I. Width of Conveyor : 250 MM Bulk Flow Type
PE-6	1	<p>ROTARY AIRLOCK VALVE</p> <p>In M.S. Construction to act as vapor seal between De-solventizer Toaster and intermediate meal conveyer, fitted with mechanical seal. Driven from the extended shaft of Solvent tight conveyor.</p>
PE-7	1	<p>DESOLVENTIZER TOSTER</p> <p>In M.S. Construction Cylindrical multistage vessel for De-solvent zing as well as toasting Specially designed for Soybean, Oil-cake, Rice-bran Comprising.</p> <ul style="list-style-type: none"> A. The cylindrical shell: 2200 MM diameter and 7 Number of Stage. B. A built in agitator shaft with agitator valve in each stage. Bearing Intermediate bearing in the bottom of individual Trays. A thrust in the bottom of cylindrical shell. C. Fluid coupling. D. Heated double bottom. E. Nozzles with holes for live steam injection. F. Inspection doors for each stage. G. The discharge valve. H. Automatic level controllers in each stage with level Indicators. I. Flame proof motor : 60 HP/ 1440 RPM J. Gear Box : B3 11 K. Plate thickness of shell : 8 MM L. Plate thickness of double bottom : 14 x 16 MM
PE-6A	1	<p>PLUGO SEAL</p>

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		<p>In M.S. Construction at act as vapor seal between De-solventizer Toaster and outgoing meal conveyor, Fitted with mechanical Seal. With Regulated speed to maintain the correct level in the final stage of Toaster and discharge the meal to outgoing meal conveyor with flame proof motor : 3 HP/ 1440 RPM Gear Box : 3"</p>
RC-9	1	<p>OUTGOING CONVEYOR In M.S. Construction, for carry the de-solventized meal to the conditioning, Comprising, The Conveyor Casing, Chain, drive part, tension part with chain tensioning device etc. Width of conveyor. : 250 MM Plate thickness. : 5 MM Flame proof Motor. : 7.5 HP / 1440 RPM Gear Box. : 3"</p>

		DISTILLATION & RECUPERATION (MINERAL OILCIRCULATION) MAKE - PEMAC
PE-29	1	<p>VAPOUR DUST SCRUBBER (Dia 1200 MM) For cleaning the vapor coming from the Toaster, comprising, Cyclone type vapor scrubber with nozzle for hot water spray Sight glass seats and covers. Safety siphon. Materials Stainless: M.S. Plate thickness : 4 MM</p>
PE-45	2	<p>HOT WATER BOILER M.S. fabricated cylindrical vessel with top & bottom dish end. Equipped with open steam heating coils, sight glass etc.</p>
PE-60A	1	<p>ECONOMIZER WITH FLASHER Capacity – 60 M2 M.O.C – M.S Body- 8 mm thick Dish- 8 mm Thick Tube Sheet – 30 mm Thick Tube-16 Swg Ss 304L ID-22.16 OD – 25.4 Nozzle Flanges- All- ASA 150</p>
PE-60B1		<p>SOLVENT RECIEVER M.S. fabricated cylindrical vessel with top & bottom dish end. Equipped with open steam heating coils, sight glass etc.</p>
PE-18A	1	<p>RISING FILM EVAPORATOR Heat surface area – 20 M2 Type – Shell & Tube (Fix Head) – 2 Pass M.O.C - M.S Shell – 6 mm Dish – 8 mm Tube Sheet – 25 mm Thick Tube – 16 Swg SS 304L Id-22.16 Vod – 25.4 Nozzle Flanges- ASA 150</p>
		<p>FLASHER steel fabricated cylindrical vessel with dish top & conical</p>

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PE-18B	1	bottom M.O.C - M.S Shell – 6 mm Thick Cone – 6 mm Thick Dish – 8 mm Ø –1200
PE-21A	1	SECONDARY MISCELLA EVAPORATOR Heat surface area – 15 M2 Type – Shell & Tube (Fix Head) – 2 Pass M.O.C - M.S Shell – 6 mm Dish – 6 mm Tube Sheet – 20 mm Thick Tube – 16 Swg Ss 304L Id-22.16 Vod – 25.4 Nozzle Flanges- ASA 150
PE-22A	1	FIRST STRIPPER Surface area – 15 M2 M.O.C - M.S Shell – 6 mm Thick Dish – 6 mm Thick Internal Dom & Dish –M.S. 3m Thick
PE-22B	1	THIRD EVAPORATOR Heat surface area – 15 M2 Type – Shell & Tube (Fix Head) – 2 Pass M.O.C - M.S Shell – 6 mm Dish – 6 mm Tube Sheet – 20 mm Thick Tube – 16 Swg Ss 304 L Id-22.16 Vod – 25.4 Nozzle Flanges- ASA 150
PE-22C	1	FINAL OIL STRIPPER Surface area – 100 M2 M.O.C - M.S Shell – 6 mm Thick, Dish – 6 mm Thick Internal Dom & Dish –M.S. 3m Thick
PE-22D	1	FINAL OIL COOLER Heat surface area – 20 M2 Type – Shell & Tube (Fix Head) – 2 Pass M.O.C - M.S Shell – 6 mm Dish – 6 mm Tube Sheet – 20 mm Thick Tube – 16 Swg Ss 304L Id-22.16 Vod – 25.4

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		Nozzle Flanges- ASA 150
PE-32A	1	SOLVENT WATER SEPERATOR M.S. construction rectangular tank, with multi compartments & siphoning arrangement for fine separation of solvent & water. Shell – 6 mm
PE-17 A/B	2	MISCELLA TANKS steel fabricated cylindrical vessel with flat top & conical bottom M.O.C - M.S Shell – 6 mm Thick Cone – 8 mm Thick Ø –2000
PE-20A	1	HORIZONTAL SURFACE CONDENSOR Surface area – 100M2 MOC – M.S. Type – Floating Head (4 Pass) Shell :- 10 mm Thk Dish :- 8 mm Thk Tube :- 18 Swg SS 304L Tube Sheet :-1 – 30 mm Thk All flanges – ASA 150 Sliding Flat:- 65 X 16 Thk – 4 Nos Tie Rod:- 10 Dia X 6 Meter – 6 Nos Partition Plate:- 8 mm Thk Saddle Support :- 2 Nos S.S Baffles:- 3 mm Thk –10 Nos With Drilling, Reaming And Expanding.
PE-20B	1	HORIZONTAL SURFACE CONDENSOR Surface area – 30 M2 MOC – M.S. Type – Floating Head (4 Pass) Shell :- 6 mm Thk Dish :- 6 mm Thk Tube :- 18 Swg SS 304L Tube Sheet :-1 – 20 mm Thk All flanges – ASA 150 Sliding Flat:- 65 X 16 Thk – 4 Nos Tie Rod:- 10 Dia X 6 Meter – 6 Nos Partition Plate:- 8 mm Thk Saddle Support :- 2 Nos S.S Baffles:- 3 mm Thk –10 Nos With Drilling, Reaming And Expanding.
PE-19	1	HORIZONTAL SURFACE CONDENSOR Surface area –80 M2 MOC – M.S. Type – Floating Head (4 Pass) Shell :- 8 mm Thk

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		<p>Dish :- 8 mm Thk Tube :- 18 Swg SS 304L Tube Sheet :-1 – 30 mm Thk All flanges – ASA 150 Sliding Flat:- 65 X 16 Thk – 4 Nos Tie Rod:- 10 Dia X 6 Meter – 6 Nos Partition Plate:- 8 mm Thk Saddle Support :- 2 Nos S.S Baffles:- 3 mm Thk –10 Nos With Drilling, Reaming And Expanding.</p>
PE-23	1	<p>HORIZONTAL SURFACE CONDENSOR Surface area –40 M2 MOC – M.S. Type – Floating Head (4 Pass) Shell :- 6 mm Thk Dish :- 8 mm Thk Tube :- 18 Swg SS 304L Tube Sheet :-1 – 25 mm Thk All flanges – ASA 150 Sliding Flat:- 65 X 16 Thk – 4 Nos Tie Rod:- 10 Dia X 6 Meter – 6 Nos Partition Plate:- 8 mm Thk Saddle Support :- 2 Nos S.S Baffles:- 3 mm Thk –10 Nos With Drilling, Reaming And Expanding.</p>
EJ-100	1 SET	<p>EJECTORS (3+2 FINAL) M.S. Fabricated Set of ejectors, specially designed for solvent extraction process.</p>
PE-58	1	<p>VACUUM BREAKER M.S. fabricated cylindrical vessel with top & bottom dish end. Equipped with open steam heating coils, sight glass etc.</p>
PE-30	2	<p>CONTACT COOLER M.S. fabricated cylindrical vessel in three piece design. Provided with lot of SS 304 pall rings.</p>
PE-120	1	<p>VAPOR ABSORBER M.S. construction cylindrical vessel, in three piece design M.O.C - M.S Shell – 6 mm Thick Dish – 8 mm Thick</p>
PHE-1	1	<p>PLATE HEAT EXCHANGER (GEA MAKE) For cooling application. Type = welded/tubular plates Material of construction Body – M.S. Plates – stainless steel</p>
PHE-2	1	<p>PLATE HEAT EXCHANGER (GEA MAKE) For cooling application. Type = welded/tubular plates</p>

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		Material of construction Body – M.S. Plates – stainless steel
PE-180A	1	HEATER Heat surface area –5 M2 Type – Shell & Tube (Fix Head) – 2 Pass M.O.C - M.S Shell – 6 mm, Dish – 8 mm Tube Sheet – 20 mm Thick Tube – 16 Swg Ss 304 Id-22.16 Vod – 25.4 Nozzle Flanges- ASA 150
PE-180	1	FINAL ABSORBER M.S. construction cylindrical vessel, in three piece design M.O.C - M.S Shell – 6 mm Thick Dish – 6 mm Thick

PUMPS & MOTORS

SR NO	TAG NO	APPLICATION	FLOW IN M ³ /HR	HEAD IN MTRS	RECOM. MOTOR IN HP / RPM ALL FLAME PROOF	MOC	QTY
1	SP 3	Miscela Circulation	30	7	2 / 1440	SS 316	7
2	SP 2	Rinsing hopper spray	30	10	2 / 1440	SS 316	2
3	SP 8	Miscela circulation	30	10	2 / 1440	SS 316	1
4	SP 63	Fresh solvent	30	15	2 / 1440	SS 316	1
5	SP 19	Solvent recovery	10	15	2 / 1440	SS 316	1
6	SP 1	Hopper loading	10	20	2 / 1440	SS 316	1
7	SP 29	Hot water circulation	10	25	2 / 2900 rpm	SS 316	1
8	SP 22	Final oil	4	40	2 / 2900 rpm	SS 316	1
9	SP 22 B	Final oil	4	40	2 / 2900 rpm	SS 316	1
10	SP 120/180	Recuperation	5	30	3 / 2900 rpm	SS 316	2

TECHNICAL SPECIFICATIONS AND SCOPE OF
CONTINUOUS MEAL CONDITIONING SECTION

ITEM	QTY	DESCRIPTION
LS-1	1	<p>LUMS SEPERATOR</p> <p>Make : PEMAC For the separation of impurities, foreign matter & dust from the seed. Complete with drive accessories. Comprising :</p> <ul style="list-style-type: none"> a) Right steel frame b) Sieve with cleaning arrangement c) Oscillating feeder d) Motors <p>3 HP / 1440 rpm- 1 no.</p>
HM-1	1	<p>HAMMER MILL</p> <p>Capacity – 10 TPD Make : PEMAC Complete in MS construction, 600 mm dia. X 8 nos of compartments, having EN-9 alloy steel beater blade size 65mm x 140mm x 12 mm thk – 32 nos duly harden. 8 mm hole dia. Sieve x 6 mm thk bar, complete with motor, pulley, pulley guard etc. Motor – 10 hp / 960 rpm</p>
PE-12	1	<p>MEAL COOLER</p> <p>In M.S. Construction for Cooling Material coming out of SEP, Fan Drying module equipped with suitable capacity fan blowing, cooling module with suitable air blower provided for blowing cold air</p> <p>1. Width : 1200 X 6000 MM. Make : PEMAC</p>
PE-13	1	<p>BAGGING SCREW CONVEYOR</p> <p>Horizontal overhead screw conveyor for bagging. MOC – M.S. Size – 250 mm (300 Dia x 250 pitch) Body – 5mm</p>

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		<p>Top – 3mm Gear box – <u>AS35P24.19P100B5B3</u> Motor – 3 hp / 1440 Make : PEMAC</p>
BE-8	1	<p>BUCKET ELEVATOR To carry incoming seeds to the seed cleaner Capacity – 5 TPH Bucket –2 mm thk. duly stiffened at mouth 12 x 3 flat. Gear Box – 3” Motor – 5 HP/1440 RPM Make : PEMAC</p>
SC-2	1	<p>BAGGING HOPPER The bagging hopper is a rectangular tank with conical bottom for proper discharge. Make : PEMAC</p>
BM-1	1	<p>AUTO BAGGING MACHINE WITH BAG STICHING Capacity – 150 BAGS /HR Design : Gravity Feeder MOC : 2mm SS Collecting chamber, 3mm MS sheet. Scope of Supply : Control panel, Pneumatic Assembly Function : Auto Weighting the Product Drive Power : 10 Kg Air Connection Filter : FRL Unit and valve Make : PRECI TECH</p>

ACCESSORIES

ITEM	QTY	DESCRIPTION
1	1 LOT	<p>ELECTRICAL CONTROL PANELS</p> <p>Comprising isolator switches, starters, fuses, fully assembled, pre-wired and painted. With mimic flow diagram, high level and low level mimic lamps, voltmeter, ammeter, hooters, Temperature indicators, vacuum indicators, etc</p> <p>3 set of control panels for</p> <p>A. Preparatory</p> <p>B. Extraction</p> <p>C. Conditioning</p>
2	1 LOT	<ol style="list-style-type: none"> 1. All water valves in Cast Iron construction 2. All valves for solvent, Miscela and oil in Cast Steel body with Stainless steel contact parts 3. All steam valves are globe valve / ball valves (energy miser) 4. Pipes & fittings – <ol style="list-style-type: none"> a. Hexane pipe lines in M.S (TATA “C” CLASS) b. Steam pipe lines in M.S (TATA “C” CLASS) c. Water pipe lines in M.S (TATA “C” CLASS) d. Miscela and oil pipe lines in M.S (TATA “C” CLASS) e. Vapor pipe lines in M.S (TATA “C” CLASS) f. Vapor Ducting in M.S 5. All steam traps with strainers, and air vents SPIRAX MARSHALL 6. Vacuum Sealing Valves 7. Automatic Safety Devise With horn and visual sign warning the Operators in case of motor failure. 8. All E.P. Push Buttons & Safety Switches For general lighting of the Extraction building and internal lighting of the apparatus. 9. Flow meters as per datasheet, To control the flow of Miscela to

		<p>Distillation column/Absorption system.</p> <p>10. Steam Reducing Station - To control the pressure of steam in Distillation Column. Automatic Temperature Regulator For controlling the temperature of the waste water from the Plant.</p> <p>11. Under Pressure Indicators</p> <p>12. 'Dial' Thermometer</p> <p>13. Pressure & Vacuum Gauges</p> <p>14. Lubricating Devices With Grease Nipples, Oil Cup And Grease gun.</p> <p>15. All Sight Glasses For Piping And Equipments.</p> <p>16. Supporting steels structural for all equipment's.</p>
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ITEM	QTY	DESCRIPTION						
<p>NOTE: WE RESERVE THE RIGHT TO ALTER THE SPECIFICATION WHEREVER FOUND NECESSARY IN THE LIGHT OF LATER DEVELOPMENTS SUBJECT TO THE CONDITIONS THAT THE OVERALL PERFORMANCE OF THE EQUIPMENTS REMAINS UNALTERED.</p>								
	<p>A)</p>	<p>CAPACITY : Expressed in metric Tons / 24 hours of property milled and prepared raw material entering the extractor with a moisture content between 7-9 %</p> <table border="0"> <thead> <tr> <th data-bbox="511 1045 787 1075">NATURE OF MATERIAL</th> <th data-bbox="812 1045 974 1075">OIL CONTENT</th> <th data-bbox="1031 1045 1209 1075">MIN CAPACITY</th> </tr> </thead> <tbody> <tr> <td data-bbox="552 1182 714 1211">1) Soybean</td> <td data-bbox="844 1182 974 1211">: 16 – 20 %</td> <td data-bbox="1071 1182 1209 1211">: 100 MTD</td> </tr> </tbody> </table>	NATURE OF MATERIAL	OIL CONTENT	MIN CAPACITY	1) Soybean	: 16 – 20 %	: 100 MTD
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	<p>B)</p>	<table border="0"> <thead> <tr> <th data-bbox="560 1287 682 1316">RESIDUAL</th> <th data-bbox="730 1287 1161 1316">OIL CONTENT OF EXTRACTED MEAL</th> </tr> </thead> <tbody> <tr> <td data-bbox="552 1379 714 1409">1) Soybean</td> <td data-bbox="852 1379 1177 1409">less than 1% by weight</td> </tr> </tbody> </table> <p>Analysis to be made with the solvent utilized in the extraction plant following official AOCS methods.</p>	RESIDUAL	OIL CONTENT OF EXTRACTED MEAL	1) Soybean	less than 1% by weight		
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	D)	<p>STEAM CONSUMPTION</p> <p>Soybean less than 325 Kgs per tones of Entering Materials.</p>
	E)	<p>POWER CONSUMPTION</p> <p>Soybean 26 K W H per tones of entering Materials.</p>
	F)	<p>WATER CIRCULATION</p> <p>25m³/hr/ton of feeding materials at 30^oC Maximum.</p> <p>All warranties apply simultaneously to the indicate capacity of the plant are to be calculated for full period of 96 hours during which properly prepared raw material, steam, steam, water and electrical will be supplied Under above said condition and without any interruption.</p> <p>Once the warranties are so demonstrated. all responsibilities on the part of vendor shall be deemed to have been fulfilled and no further claims of whatsoever nature of description shall be entertained.</p>
	G)	<ol style="list-style-type: none"> FLASH POINT – MORE THAN 120 DEG. PLANT WILL OPERATE UNDER VACUUM DOC OUTLET TEMPERATURE TOASTER OUT – 100 DEG. MEAL COOLER OUT – 15 DEG. ABOVE AMBIENT AIR TEMPERATURE. DOC MOISTURE CONTAIN – 6 – 8 % ABSORPTION GROUP OIL CONSUMPTION – it will be closed circuit and will be changed once in a year (if it is synthetic oil), quantity will approx.. 2500 Kgs
	H)	<p>OPERATING MANPOWER REQUIRMENT (8 HOURS SHIFT)</p> <ol style="list-style-type: none"> MAIN PLANT – 1 SHIFT SUPERVISOR + 2 ASSISTENCE MEAL CONDITIONING - 1 SHIFT SUPERVISOR + 2 ASSISTENCE BOILER HOUSE - 1 SHIFT SUPERVISOR + 4 FIRE MAN
	I)	<p>AREA REQUIRMENT</p> <ol style="list-style-type: none"> MAIN PLANT – 200 M² (EXTRACTION UNIT TOTAL CLOSED AREA) FREE SPACE – 2500 M² (INCLUDING CLOSED AREA)
	K)	<ol style="list-style-type: none"> TYPE OF EXTRACTOR – HORIZONTAL MOC OF DESOLVENTIZER TOASTER – MILD STEEL MOC OF EXTRACTOR – MILD STEEL MOC OF CONDENSORS – BODY IN MILD STEEL & TUBES IN SS 304 L SEEMLESS

		<p>5.-ALL WATER VALVES IN MILD STEEL</p> <p>6.-ALL VALVES FOR SOLVENT, MISCELA AND OIL - BODY IN MILD STEEL & CONTACT PARTS WILL BE IN STAINLESS STEEL 304 L</p> <p>7. ALL STEAM VALVES ARE GLOBE VALVE / BALL VALVES (ENERGY MISER)</p> <p>8. PIPES & FITTINGS –</p> <p>A. HEXANE PIPE LINES IN MILD STEEL (SCH 10)</p> <p>B. STEAM PIPE LINES IN MILD STEEL (SCH 10)</p> <p>C. WATER PIPE LINES IN MILD STEEL (TATA “C” CLASS)</p> <p>D. MISCELA AND OIL PIPE LINES IN MILD STEEL (SCH 10)</p> <p>E. VAPOR PIPE LINES IN MILD STEEL (SCH 10)</p> <p>F. VAPOR DUCTING IN MILD STEEL</p> <p>9. PUMPS – KSB MAKE</p> <p>10. ELECTRICAL MOTORS – BHARAT BIJALEE / CROMPTON</p> <p>11. SWITCHGEARS (ELECTRICAL MATERIALS) – SCHINEIDER</p>
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SECTION 2

UTILITIES

COOLING HOUSE & PUMPING SECTION

1) BAROMETRIC WATER COOLING TOWER FOR SOLVENT PLANT - 1 NOS.

For this requirement we offer double shell cooling tower, suitable for cooling 125 CMH of water from 38 deg. to 32 deg. At design wet bulb temp. of 26 deg. This model offered is a conventional treated timber cooling tower with treated timber splash type of this fills supported on GRP grids and having cast aluminum alloy fan blades. It is single shell cooling and suitable for installation on RCC basin.

Type	Double Flow
Capacity	125 CMH
Hot water temperature	38 deg
Cold water temperature	32 deg
Designed wet bulb temperature	26 deg
Installed power	7.5 HP

2) PUMP DETAILS : -

WP 1/2 – Barometric Water Pump

Q – 125 M3/HR

H – 35 MTRS

POWER – 25 HP

3) CONTROL PANEL 1 NO

Comprising isolator switches, starters, fuses, fully assembled, pre-wired and painted. With mimic flow diagram, high level and low level mimic lamps, voltmeter, ammeter, hooters, Temperature indicators, vacuum indicators, etc.

4) PIPELINE AND ELECTRICAL MATERIALS - 1 LOT

Including carbon steel pipes, stainless steel pipes, pipe fittings, valves, paint, Cables, earthing, push button switches, cable trays, conduits etc.

WATER SOFTNER

WATER SOFTENING PLANT - Qty = 1 No.

RAW WATER ANALYSIS

TOTAL DISSOLVED SOLIDS - 450 PPM

TOTAL HARDNESS - 150 PPM

NOTE: ANY CHANGE IN WATER QUALITY WILL AFFECT THE WORKING IN PLANT

SCHEME OFFERS NEW GENERATION SOFTENING PLANT MADE OF FRP HIGHLY CORROGEN RESISTANCE MATERIAL WITH LEVER OPERATED PLASTIC MULTIPOST VALVE THE UNIT IS FILLED WITH "CATION RESIN" THE UNIT WILL PRODUCE AN OUTPUT OF 145 M3 / REGENERATION WHILE TREATING RAW WATER HAVEN TOTAL HARDNESS OF 150 PPM

TECHNICAL DATE AND SCOPE OF SUPPLY:

MODEL	NGS 10B
DIA x HOS	300MM x 1500mm
MAX WORKING PRESURRE	3.5 KG/CM2
MIN WORKING PRESSURE	1.8 KG/CM2
MAX FLOW RATE	3 M3/HR
AVG FLOW RATE	2 M3/HR
NACL	64 KGS
OUTPUT BETWEEN REGENERATION	145 m3 / REGENERATION
RESIN QUANTITY	400 LITERS
TOTAL HARDNESS	150 PPM

SCOPE OF SUPPLY:

PRESSURE VESSEL	1 NO.
SET OF PLASTICS (PVC) PIPE WORK WITH MULTIPOST VALVE AND BRINE EJECTOR AND SUCTION ASSEMBLY.	1 NO.
SET OF INTERNAL DISTRIBUTION SYSTEM	1 NO.
CHARGE OF RESINS	1 NO.

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SALT SECURATOR OF PLASTIC CONSTRUCTION 1 NO.

SET OF HARDNESS TEST KIT. 1 NO.

FEED PUMP – 3 NOS. (Installed power - 3 HP)

STEAM BOILER

(Make – THERMAX/IBL)

WATER TUBE COAL / WOOD FIRED BOILER HAVING AN EVAPORATION CAPACITY OF 2,000 KGS /HR.

TECHNICAL SPECIFICATIONS

DATA HEAD	2,000
EVAPORATION Kg / Hr F & A 100 deg.	2,000
TYPE	water tube
Manual fired boiler III pass.	
WORKING PRESSURE	14 KG / CM2
STEAM DRYNESS FACTOR	98 %
DESIGN CODE	IBR
THARMAL EFFICIENCY	75% ± 2with HRU on NCV of coal
	As per BS: 845 Pt. 1

Complete with following,

1. Electric control panel
2. Complete refractory.
3. Hot insulation
4. Chimney
5. Water pre heater, dust collector, I.D. fan, F.D. fan, feed pumps, set of std. instruments etc.
6. Interconnecting ducting etc.
7. Complete pipeline from the Boiler House to the Process House, including PRESSURE REDUCING STATION.

TOTAL INSTALLED POWER – 45 HP

BUILDING & SUPPORTING STEEL STRUCTURAL

Complete building steel structural for PROCESS HOUSE, BOILER HOUSE, ETC. including with complete supporting structural required for installation of various equipment and vessels according to the design stages, and other installations, also pipeline supports etc. And intermediate storage tanks in process area for the intermediate storage of oil as well as byproducts and chemicals.

NOTE – BUILDING STRUCTURAL DOES NOT INCLUDES THE ROOF SHEETS, VERTICAL SHEETS, LOWERS SHEETS, AND CIVIL WORK

STRUCTURAL

PROCESS HOUSE FOR

MAIN EXTRACTION PLANT - 25 Mtrs X 10 Mtrs X 15 Mtrs

BOILER HOUSE – AREA 10 Mtrs X 10 Mtrs X 10 Mtrs

PREPARATORY - 20 Mtrs X 40 Mtrs X 10 Mtrs

DOC GODOWN - 80 Mtrs X 40 Mtrs X 8 Mtrs

(Note – will be fabricated at site)

BULK STORAGE TANKS

Capacity –

200 MT – 2 No's

Flat bottom, conical top, cylindrical tanks with required stiffeners, vertical & horizontal supports, operating manholes, air vent nozzles, ladders, operating platform and railing.

Also includes

- a) Crude oil transfer pump – 2 nos.(Installed power - 5 HP)
- b) Complete pipeline with valves, flanges, bends, sensors etc.
- c) Tank oil level indicating arrangement. Etc.
- d) Electric control panel & complete electrification.

PERFORMANCE GUARANTEES

Provided that the equipment is installed and operated as per our instructions, we give the following Guarantee.

3.1 Guarantee against Defects

We guarantee all the equipment offered by us against material, workmanship and manufacturing defects for a period of 12 months from the date the plant has been taken into operation or 18 months from the date of shipment of last of last major equipment / consignment to site whichever is earlier. This guarantee is subject to the following:

- a) Purchaser operating plant/ equipment as per operating instructions and procedures furnished by PEMAC.
- b) Purchaser carrying out regular and preventive maintenance of equipment.
- c) Purchaser not carrying out any modification or replacement without

PEMAC'S approval in writing during guarantee period.

PEMAC shall not be responsible for replacement or repairs for normal wear and tear of component due to operation and parts like rubber, glass and consumables, mechanical seal, gauges and instruments.

BOUGHT-OUT ITEMS

When the buyer specifies any particular make of bought-out components the seller shall not be held responsible for the quality of the same or for any delay in delivery of the bought-out components. Non-delivery of such components shall not delay payment for goods dispatched except to the extent of the cost of items not delivered.

Where the components supplied are not manufactured by the seller, the buyer is entitled only to the benefit to any guarantee given to the seller by the manufacturers in respect of the said components.

Also PEMAC shall not be responsible for any consequential or indirect damages.

STANDARD PURCHASE LIST

Following make/ Brand items will be supplied in case it is required as per our design, specifications and fall within battery limit

PUMPS:-

CENTRIFUGAL	= KSB / JHONSON
SCREW	= HYDRO PROVOK
MONO BLOCK	= KIRLOSKAR

MOTOR (TEFC) = CROMPTON / BHARAT BIJALEE

VACUUM EQUIPMENTS = MAZDA

VALVES:-

STEAM	= KSB/G.G./LEADER
WATER	= SICO / AUDCO
OIL	= SICO / AUDCO

CABLE, Armored = POLYCAB / FINOLEX

INSTRUMENTS = WAREE

METERING PUMP SYSTEM = SWELLORE / S R

GEAR BOX = ELECON / BONFLIGLIOLI

STEAM TRAP = SPIRAX

TEMPERATURE CONTROLLER = SAMSON / TOSHNIWAL

MECHANICAL SEALS = SICO / SUPER

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PRV STEAM

= FORBS/CIRCOR

ROTA METER

= EUREKA

LIMIT SWITCH

= S.B.E.M / ENDRESS+HAUSER

PHE

= ALFA-LAVAL / GEA

FILTER PRESS

= HYDRO PRESS INDUSTRIES

SEPARATORS

= ALFA – LAVAL

CHILLING UNIT

= THARMAX / BLUE STAR.

CHILLING SYSTEM

= MAZDA / SHELLVAC.

PIPELINES

= TATA/JINDAL

SWITCHGEARS

= SCHNIDER

STILL / STRUCTURES

= SAIL/TATA/JINDAL

NOTE: - Above mentioned brand may change subject to availability, better performance of the plant.