

**INQUIRY FOR SUPPLY, INSTALLATION, TESTING AND
COMMISSIONING OF P&M FOR IQF, IQF PREPARATORY LINE &
MULTI FRUIT PROCESSING LINE**

FOR

**CORE PROCESSING FACILITIES
AT MUDARDA VILLAGE,
MEHSANA,
GUJARAT.**

JANUARY, 2018

**OWNER
FANIDHAR MEGA FOOD PARK PVT LTD.
10/11, SECOND FLOOR,
ORCHID THE SHOPPING MALL,
THALTEJ SHILAJ ROAD,
THALTEJ, AHMEDABAD
GUJARAT-380059**

**PROJECT MANAGEMENT CONSULTANT
TECHNOPAK ADVISERS PVT. LTD.
GURGAON**

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SECTION - A: INVITATION TO TENDER DESIGN, SUPPLY, INSTALLATION, AND COMMISSIONING WORKS OF P&M for IQF PREPARATORY LINE AND MULTI FRUIT PROCESSING LINE

1.0 Tenders are invited for Supply, Installation, Testing and Commissioning of IQF Preparatory Line and Multi Fruit Processing Line for CPC building in MFP at Mudarda Village, Mehsana, Gujarat, as mentioned in "Scope of Works" for Fanidhar Mega Food Park Pvt. Ltd. ("Owner").

2.0 Tender Documents shall be download from the website www.fmfp.co.in. A Tender processing fee (non-refundable) of Rs 10,000 to be submitted in form of cash or DD at the time of submission of tender.

3.0 Tender Documents will be submitted to

(A) Mr. Ajit Dhranga
+91-9586432323
E-Mail: info@fmfp.co.in

**FANIDHAR MEGA FOOD PARK PVT LTD.
10/11, SECOND FLOOR,
ORCHID THE SHOPPING MALL,
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All inquiries and correspondence shall be directed in writing to the above **address**.

4.0 The tenderers should return their completed Tender in two parts – separately and distinctly marked (i) Volume – 1 of 2 (ii) Volume – 2 of 2 ("Tender"). The Tender will be received at the address given above by 3.00 p.m. local time on **05.02.2018**.

Submission of tender:	<p>1. The tenderer shall submit the documents in two separate envelopes marked as</p> <p>ENVELOPE 'A' –EMD and other all documents except price bid</p> <p>AND</p> <p>ENVELOPE 'B' – Technical Specification and Price Bid</p> <p>2. These two envelopes shall be packed in one cover envelope addressed as under – ADDRESS AS PER ABOVE</p> <p>3. Only the "ENVELOPE A" shall be opened first and eligibility of the tenderer shall be evaluated as per criteria defined above. "ENVELOPE B" shall be opened only for those tenderers who qualify as per the eligibility criteria.</p>
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5.0 Documents To Be Submitted –

5.01 Envelope A –

5.01.1 CA Certificate of last three years Turn Over

5.01.2 CA Certificate of company net worth

5.01.3 List of successfully completed projects of last three years with client name and contract value.

- 5.01.4 EMD of Rs 1 Lakh in the form of DD or BG in favor of Fanidhar Mega Food Park Pvt Ltd ; payable at Ahmedabad.
- 5.01.5 ITR last three years
- 5.01.6 Verifiable Client References
- 5.01.7 List of technical manpower
- 5.01.8 List of machines in manufacturing facility
- 5.01.9 Proof of technology association if any
- 5.01.10 Proof of international exposure

- 5.02 Envelope B
 - 5.02.1 Design Details
 - 5.02.2 PI Diagram
 - 5.02.3 Specifications
 - 5.02.4 Itemized Quotation

6.0 Eligibility Criteria

- 6.01 At least three completed projects of similar nature
- 6.02 At least two projects of 50 % of quoted price.
- 6.03 Average three years turnover should be more than or equal to the quoted price.
- 6.04 Organization should be profitable.
- 6.05 At least two projects of similar nature should be successfully running for last two years. Supporting proof to be attached.

7.0 Eligibility criteria for IQF line (1MT/H)

Sr. No.	Particulars	Requirements
01	Turn Over	Must be three times of the quoted price (provide CA Certificate)
02	Net Worth	Must be 3 times of the quoted price (provide CA Certificate
03	Business Status	Must be profitable business for last three years
03	Client Reference	To be provided in writing
04	Track Record	Successful and running installations for at least two years at any of the two client places
05	Desirable	International Exposure of similar nature

8.0 Components from reputed OEM are accepted.

9.0 Typical Payment Terms

- 9.01 Mobilization advance to a max of 50 % against submission of equivalent amount of BG or a corporate guarantee
- 9.02 Max 40 % Payment against dispatch of plant and machinery
- 9.03 Max 5 % against installation and commissioning
- 9.04 Max 5 % against submission of BG valid for 12 months after acceptance of installation and commissioning report. The BG shall be released after completion of this defect liability period.

10.0 The Owner reserves the right to accept or reject any or all Tenders without giving any reasons thereof, in their sole discretion and without any liability or costs to the tenderer. The Owner clearly states that this is merely an invitation to an offer and is not an offer, and therefore makes no obligation in any way to pay any tenderer for any response or to award the tender or make any commitment to any tenderer whatsoever. The Owner may further waive any deviations which do not constitute a material modification in the

Tenders received. In the event that there are any other material deviations in the Tender, the Owner may in its sole discretion reject and remove such deviations from the Tender and accept the same. The decision whether the deviation constitutes a material modification shall solely be that of the Owner and such decision shall be binding on the tenderer(s).

11.0 One Bid per Bidder

- a. Each bidder shall submit only one bid for one contract. A bidder who submits or participates in more than one Bid (other than as a Sub-contractor or in cases of alternatives that have been permitted or requested) shall cause all the proposals with the Bidder's participation to be disqualified.
- b. Tender documents are not transferable.

12.0 Cost of bidding

The bidder shall bear all costs associated with the preparation and submission of his Bid, and the Employer shall in no case be responsible and liable for those costs.

13.0 Site visit

The Bidder may visit the site and examine the Site of Works and its surroundings and obtain all information that may be necessary for preparing the Bid and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the Bidder's own expense.

14.0 Clarification of Bidding Document

- a. A prospective bidder requiring any clarification of the bidding documents may notify the Employer in writing by mail at the PMC's and Employer's mail address & indicated in the invitation to bid. The Employer shall respond to any request for clarification which he received earlier than 7 days prior to the deadline for submission of bids. Copies of the Employer's response shall be forwarded to all purchasers of the bidding documents, including a description of the enquiry but without identifying its source.

15.0 Amendment of Bidding Documents

- a. Before the deadline for submission of bids, the Employer may modify the bidding documents by issuing tender addends.
- b. Any addendum thus issued shall be part of the bidding documents and shall be communicated in writing through email or by fax to all the purchasers of the bidding documents. Prospective bidders shall acknowledge receipt of each addendum by fax to the Employer. Addenda shall be incorporated in the bids submitted by the Bidder

General Conditions

1. Co-ordination between different Agencies

The Contractor shall submit the details of Erection works programme to the engineer who will co-ordinate with the programme of the Civil / Mechanical / Electrical contractor separately submitted to him. Such co-ordination of Civil / Mechanical / Electrical and Erection works programme shall be agreed between the engineer, erection and civil

works contractors and the agreed programme shall then be mutually binding on Contractors for Civil / Mechanical / Electrical & PEB Erection.

2. Insurance

a. The Contractor shall indemnify the Owner and every member, Officer, and Employee thereof and the Engineer and the Engineer's Agents and Representative and every member of his staff from any claim or demand from accident, injury, damage, loss and/or compensation of any kind whatsoever arising out of or in connection with all claims and demands which may be made against the Owner or the Engineer for or in respect of or arising out of failure by the Contractor in the performance of his obligation under any of the provisions of the Contract. The Contractor shall take necessary insurance to protect himself against claim or demand.

b. Without prejudice to his liability to indemnify the Owner under Article (a) of these Conditions, the Contractor shall maintain and shall cause any Sub- Contractor to maintain: -

Such insurances as are necessary to cover the liability of the Contractor or as the case may be of such Subcontractor, in respect of personal injuries or deaths arising out of or in the course of or caused by the carrying out of the work; and

Such insurances as may be specifically required by the Contract Bills in respect of injury or damage to property real or personal arising out of or in the course of or by reason of the Contractor or his Sub-Contractor carrying out the work, and caused by any negligence, omission or default of the Contractor, his servants or agents or, as the case may be of such Sub- Contractor, his servants or agents.

c. The Contractor shall obtain and maintain a comprehensive all risk policy which should also cover insurance against loss or damage by fire, storm, tempest, lightning, flood, earthquake, aircraft or anything dropped there from, aerial objects, riot and civil commotion for the full value thereof all work executed and all unfixed materials and goods intended for, delivered to and placed on or adjacent to the work until Virtual Completion of the work. Should the Contractor make default in insuring or continuing to insure as aforesaid the Owner may himself insure against any risk with respect of which the default shall have occurred and deduct a sum equivalent to the amount paid by him in respect of premium from any monies due to or to become due to the Contractor.

3. Approval by the Owner / the Engineer

Any approval or any approval given with changes, by the Owner, Engineer or their representative shall not relieve the Contractor of any of its obligation, responsibility and liability for the safety, correctness and performance of the Works and his obligations hereunder.

4. Storage

It will be Contractor's responsibility to unload and store materials/Equipments properly. Storage of materials/Equipments received at site will be Contractor's responsibility. Contractor will be responsible for it till the handover of site.

5. Safety

a. Workers required to work at higher elevations shall be provided with safety belts and shall be instructed not to work without wearing the Belt.

- b. Good quality safety helmets shall be provided to Workers posted at Site of operations and Contractor will take adequate measures to make usage of these helmets mandatory.
- c. Where there is danger of falling from a height exceeding 3.25 m., suitable precaution shall be taken to prevent the fall of persons or material. Suitable precautions shall also be taken to prevent persons being struck by articles, which might fall from scaffolds or other working places.
- d. In general, the Contractor shall adhere to safe construction practice and guard against hazardous and unsafe working conditions and shall comply with Owner's safety rules.
- e. The Contractor shall adhere to all safety rules and regulations as indicated under attached OHS Manual.

Scope of Works

This document contains three sections –

Section I	IQF Preparatory Line
Section II	IQF
Section III	Multi Fruit Processing Line

The general scope of work for all three includes the following -

- a. Design, Supply, Packing & Forwarding of Machine/Equipment/Components.
- b. Unloading of Machine/Equipment/Components,
- c. Unpacking of machines/equipment/components packed parts,
- d. Shifting of all unpacked material/equipment/components to installation location place
- e. Assembling of all material machine parts/equipment/components parts
- f. Erection of all material machine/equipment/components.
- g. Achieve required levelling and alignment of machine/equipment/components.
- h. Commissioning & testing of installed machine/equipment/components.

SECTION I: - SCOPE OF SUPPLY (BILL OF QUANTITY) – IQF PREPARATORY LINE

- 1 Inspection Tables: - Qty - 10 Nos.**
- ❖ SS304 construction suitable for manual operation of sweet corn kernel removal, inspection, sorting.
 - **Size – 900 mm wide x 2300 mm lg.**
- 2 Feed Flight Elevator: - Qty - 1 No.**
- ❖ Suitable for feeding corn kernels to the Rod Washer. The raw material is fed into the SS feed hopper. The elevator will elevate the required quantity of material and feed it to the Rod Washer.
 - ❖ The equipment is provided with: -
 - 1.1 SS304 feed hopper with rigid framework.
 - 1.2 PP Modular belt with flights and supported at both ends in drive / driven sprocket assembly.
 - 1.3 SS304 discharge chute.
 - 1.4 Fixed speed drive for belt.
 - **Capacity – 1000 kgs/hr.**
 - **Electric power requirement – 1.5 kW (2.0 HP).**
- 3 Rod Washer: - Qty – 1 No.**
- ❖ Suitable for washing & cleaning of Corn Kernels. It will be a drum fabricated from Round bar.
 - ❖ The equipment consist off -
 - 3.1 SS304 Drum with Supporting Flats and Rd bar welded lengthwise. There will be a tumbling action in the drum.
 - 3.2 SS304 SQ Tube frame for supporting the drum.
 - 3.3 SS304 Spray pipes for fresh water spray.
 - 3.4 Supporting Rollers for Drum with shaft and bearings.
 - 3.5 SS304 feed hopper and discharge chute.
 - 3.6 Fixed speed drive with geared motor and set of sprockets, chain SS guard.
 - **Electric Power Requirement: - 2.2 KW (3.0 HP).**
- 4 Flood Washer: - Qty - 1 No.**
- ❖ Suitable for washing of corn kernels.
 - ❖ The equipment is provided with: -
 - 4.1 SS304 in feed tank. The tank will be provided with bottom drain connection, overflow connection.

- 4.2 PP modular perforated belt with flights. The belt is supported at both drive and driven end in sprockets, shaft and bearings.
- 4.3 Aluminum Blower for agitation.
- 4.4 SS304 water spray pipe arrangement.
- 4.5 SS304 feed hopper and discharge chute.
- 4.6 Fixed speed drive for washer belt.
 - **Capacity – 1000 kgs/hr.**
 - **Electric power requirement –**
 - **1.5 kW (2.0 HP) for pick-up conveyor.**
 - **1.5 kW (2.0 HP) for blower.**

5 Belt Blancher / Cooler: -

Qty – 1 Set.

- ❖ Suitable for blanching of corn kernels. The product initially will pass through blanching zone. The Blancher will be provided both steam and hot water bath. The belt speed can be varied which is provided with VFD. The Blancher is designed for 6 minutes blanching time on sweet corn kernels.
- ❖ The blanched material is then transferred on to the cooler / chiller. Chilled water is sprayed on the product through the header with nozzles. This water is collected and pumped to the feed end of the cooler.
- ❖ The model consists of: -
 - 5.1 SS304 side frame with square tube mounting rigid framework. The frame will be provided with inspection windows in between.
 - 5.2 PP Modular perforated belt. The belt is supported at both ends in drive and driven sprocket assembly. The belt is supported in UHMWPE wear strips.
 - 5.3 The product on belt will be guided by side guides.
 - 5.4 The product will travel into a rectangular tank on top side which cab be a hot water zone.
 - 5.5 There will be Steam spray header in the tank supported at bottom side of belt dipped in water level.
 - 5.6 Top removable type covers.
 - 5.7 Bottom water collection tank, water circulation pump with interconnecting piping and fittings.
 - 5.8 The drive will be variable speed type with 3 to 10 minutes variable residence time.
 - **Capacity :- 1.0 MTPH**
 - **Electric power requirement –**
 - **3.7 KW (5.0 HP) for Blancher / Cooler.**
 - **0.75 KW (1.0 HP) For Circulation pump..**
 - **Steam Required – 500 kgs per hr at 2 kg per cm sq pr.**

6 Shaker Unit: -

Qty – 1 No.

- ❖ Suitable for removal of moisture of product.
- ❖ The equipment consist off -
 - 6.1 SS304 Perforated sheet with Slots mounted on SS304 square tube frame. The slots will be 4 mm x 20 mm.

- 6.2 Vibratory motor assembly mounted on side frames.
- 6.3 SS304 framework with SS supporting stays and brackets.
- 6.4 SS304 bottom collection tray.

- **Electric Power Reqd: - 1.5 KW (2.0 HP) for Vibrating Motors.**

7 Inspection Conveyor: - Qty - 1 No.

- ❖ Suitable for pre-inspection of vegetables before they enter into the processing section.
- ❖ The equipment consist off -
 - 7.1 SS304 framework for Conveyor.
 - 7.2 PVC Coated Food Grade endless Belt.
 - 7.3 SS304 trough for supporting belt on top portion.
 - 7.4 PVC belt support Rollers with suitable brackets at bottom side of belt.
 - 7.5 SS Drive pulley supported at both ends in bearings.
 - 7.6 SS driven pulley supported in bearings which can be adjusted for giving tension for PVC belt.
 - 7.7 SS304 Feed Hopper and discharge chute.
 - 7.8 Fixed Speed Drive for conveyor belt with base plate & guards for drive.
 - **Size of Conveyor – Width – 700 mm x Lg – 3,000 mm Ctrs.**
 - **Electric Power Requirement – 0.75 KW (1.0 HP) for belt drive.**

8 Feed Flight Elevator (IQF Feeder): - Qty – 1 No.

- ❖ Suitable for elevating the cut corns to the IQF feed Vibrator.
- ❖ The equipment consist off -
 - 8.1 SS304 framework with SS304 supporting stays and brackets.
 - 8.2 PP Modular belt supported at both ends in drive and driven sprocket assembly.
 - 8.3 The belt will be supported on top side in UHMWPE wear strips.
 - 8.4 SS304 feed hopper and discharge chute.
 - 8.5 Fixed speed drive for bucket elevator with Geared motor and set of sprockets.
 - **Electric Power Requirement: - 0.75 KW (1.0 HP).**

9 Inspection Conveyor (Packing Section): - Qty - 1 No.

- ❖ The equipment consist off -
 - 9.1 SS304 framework for Conveyor.
 - 9.2 PVC Coated Food Grade endless Belt.
 - 9.3 SS304 trough for supporting belt on top portion.
 - 9.4 PVC belt support Rollers with suitable brackets at bottom side of belt.
 - 9.5 SS Drive pulley supported at both ends in bearings.
 - 9.6 SS driven pulley supported in bearings which can be adjusted for giving tension for PVC belt.
 - 9.7 SS304 Feed Hopper and discharge chute.
 - 9.8 Tube lights for bright light mounted on SS frame.

9.9 Fixed Speed Drive for conveyor belt with base plate & guards for drive.

- **Size of Conveyor – Width – 700 mm x Lg – 3,000 mm Ctrs.**
- **Electric Power Requirement – 0.75 KW (1.0 HP) for belt drive.**

10 Overflow Tank / Pump: -

Qty – 3 Sets.

❖ Suitable for collection of overflow water which is then pumped to the various equipment.

❖ Consisting off -

10.1SS304 rectangular tank with top removable type perforated tray.

10.2Water circulation pump centrifugal type.

10.3SS interconnecting piping and fittings.

- **Electric Power Requirement: - 0.75 KW (1.0 HP) x 3 Nos.**

11 Electric Control Panel: -

Qty – 1 No.

❖ Suitable for above motors.

❖ The panel consist off -

11.1Contactor, relay, push button etc.

11.2SS Panel with stand.

12 SS Platform: -

Qty – 1 Set.

❖ SS construction with aluminum chequered plate, ladder and railing for Blancher.

SECTION II:- SCOPE OF SUPPLY (BILL OF QUANTITY) – IQF

Sr No	Particulars	Specifications
01	Capacity	1 MT/Hr
02	Product Basis for capacity design	Green Peas
03	Type	Flow Freezer / Straight Line
04	Evaporating Temperature to IQF	- 42 Degree C
05	Condensing	+ 40 Degree C
06	Defrosting	Auto / hot gas defrost
07	CIP System	To be provided
08	System Control	PLC Based with SCADA with suitable alarms and triggers
07	Component Parts	Reputed make
08	All parts	Food Grade
09	Design	GMP
10	Technology	Indian / International
11	Desirable Feature	Energy Efficiency
12	Defect Liability	12 months from the date of installation

SECTION III :- MULTI FRUIT PROCESSING LINE 1 MTPH Raw Material Input (Frozen Pulp / Dices).

PROCESS DESCRIPTION:-

Frozen Fruit Processing Line (Dices / Pulp):-

Mangoes / Papaya: - The Fruits are washed and then cut as required. The cut fruits with the skin is fed into the Pulper / Finisher for extraction of Pulp. The pulp is then pasteurized in Kettle and fed into the Cooling / Filling Tank.

Guava: - Washed and then fed into the Crusher. The pulp is then pumped to the Pulper / Finisher for preparation of Guava Pulp.

Custard Apple: - The removal of eatable material for the Custard Apple is done manually. The pulp is then passed through the extractor.

Fruits to be processed	Mango, Papaya, Guava, Custard Apple.
Product to be manufactured	Mango / Guava / Custard Apple Pulp Mango / Papaya Dices
Total power required	50 HP Connected load for PM equipment. Electric supply will be 400 – 440 V, 3 PH, 50 Hz.
Total Steam required	600 Kgs per hr.
Process water required	2000 LPH.

A INSPECTION :-

1 Flood Washer : -

Qty - 1 No.

- ❖ Suitable for washing of Fruits.
- ❖ The equipment is provided with: -
 - 1.5 SS304 in feed tank. The tank will be provided with bottom drain connection, overflow connection.
 - 1.6 PP modular perforated belt with flights. The belt is supported at both drive and driven end in sprockets, shaft and bearings.
 - 1.7 Aluminium Blower for agitation.
 - 1.8 SS304 water spray pipe arrangement.
 - 1.9 SS304 feed hopper and discharge chute.
 - 1.10 Fixed speed drive for washer belt.
 - **Capacity – 1000 kgs/hr.**
 - **Electric power requirement –**
 - **1.5 kW (2.0 HP) for pick-up conveyor.**
 - **1.5 kW (2.0 HP) for blower.**

2 Inspection Conveyor: -

Qty - 1 No.

- ❖ Suitable for Inspection of Fruits and Vegetables. The Conveyor will be three way type with raw fruits moving on the sides while the finished raw material being conveyed in center portion.
- ❖ The equipment consist off -
 - 2.1 SS304 square tube framework for Conveyor.
 - 2.2 PVC Coated Food Grade endless Belt.
 - 2.3 SS304 trough for supporting belt on top portion. SS side guides with three way partition.
 - 2.4 PVC belt support Rollers with suitable brackets at bottom side of belt.
 - 2.5 SS drive pulley supported at both ends in bearings.
 - 2.6 SS driven pulley supported in bearings which can be adjusted for giving tension for PVC belt.
 - 2.7 SS304 Feed Hopper and discharge chute.
 - 2.8 Fixed Speed Drive for conveyor belt with base plate & guards for drive.
 - **Size of Conveyor – Width – 800 mm x Lg – 5,000 mm Ctrs.**
 - **Electric Power Requirement – 1.1 KW (1.5 HP) for belt drive (FSD).**

3 Bucket Elevator : -

Qty - 1 No.

- ❖ Suitable for feeding of vegetables to the Pulper / Finisher.
- ❖ The equipment consist off -
 - 3.1 SS304 framework with SS304 supporting stays and brackets.
 - 3.2 PP bucket assembly connected with each other. The bucket is driven in CI chain wheel.
 - 3.3 SS304 feed hopper and discharge chute.
 - 3.4 Fixed speed drive for bucket elevator with Geared motor and set of sprockets.
 - **Capacity: - Up to 1000 Kgs per hour each.**
 - **Electric Power Requirement: - 1.1 KW (1.5 HP).**

B PROCESSING :-

4 Twin Pulper : -

Qty – 1 Set.

- ❖ Suitable for extraction of pulp. The unit is provided with pulper and finisher mounted one above the other.
- ❖ Equipment Consist off -
 - 4.1 SS304 Body with end flanges and supporting rings for the pulping Screen.
 - 4.2 Pulping Screen with 1.5 mm dia perforation for pulper while the finisher will be provided with 0.8 mm dia perforation.
 - 4.3 SS304 Feed Hopper and Discharge chute for the collection of juice.
 - 4.4 Waste chute for the discharge of waste.
 - 4.5 SS304 shaft with 2 nos. of beater blades and 2 nos. of brushes.
 - 4.6 SS legs / Framework bolted to the body with baseplate for drive.
 - 4.7 Fixed speed drive for Pulper with Electric motor and set of pulleys.
 - **Capacity: - 1000 Kgs per Hour.**

- **Electric Power Requirement :-**
 - **5.5 KW (7.5 HP) for pulper.**
 - **3.7 KW (5.0 HP) for finisher.**

5 Collection Tank: - Qty – 1 No.

- ❖ Suitable for collection of the product received from Finisher.
- ❖ The equipment consist off -
 - 5.1 SS304 Rectangle Slope bottom Tank with 4 nos. of legs.
 - 5.2 SS304 Lid from top.
 - 5.3 Outlet connections.

- **Holding Capacity: - 500 Liters.**

6 Transfer Pump : - Qty - 1 No.

- ❖ Suitable for pumping the product from the collection tank.
- ❖ Equipment Consist off -
 - 6.1 Screw pump with MS bonded Nitrile stator and SS304 rotor.
 - 6.2 SS base plate for pump.
 - 6.3 Fixed speed drive with Electric motor, set of V pulleys, V belt and guard etc.

- **Capacity: - 1500 LPH.**
- **Electric Power Requirement: - 1.5 KW (2.0 HP) for Pump.**

7 Steam Jacketed Kettle (Stirrer / Tilting Type) : - Qty – 2 Nos.

- ❖ Equipment Consist off -
 - 7.1 SS304 cylindrical body with bottom hemispherical portion.
 - 7.2 The bottom hemispherical portion will have a SS jacket for steam heating.
 - 7.3 Manual tilting arrangement with handle, worm and worm wheel.
 - 7.4 SS supporting rigid framework with mounting pads.
 - 7.5 Stirrer Arrangement with PTFE Scrappers, shaft, supporting tripod.
 - 7.6 Fixed speed drive for stirrer shaft.
 - 7.7 Steam and condensate piping and fittings.

- **Holding Capacity each : - 250 Liters**
- **Total Electric Power Reqd : - 1.1 KW (1.5 HP) x 2 Nos.**
- **Total Steam Reqd : - 400 KGS per Batch at 2 Kg/cm².**

8 Steam Jacketed Kettle : - s Qty – 1 No.

- ❖ Suitable for heating of pulp.
- ❖ Equipment Consist off -
 - 8.1 SS304 cylindrical body with bottom hemispherical portion.
 - 8.2 The bottom hemispherical portion will have a SS jacket for steam heating.
 - 8.3 SS supporting Pipe legs with mounting pads.
 - 8.4 Stirrer Arrangement with PTFE Scrappers, shaft, supporting tripod.
 - 8.5 Fixed speed drive for stirrer shaft.

8.6 Steam and condensate piping and fittings.

- **Holding Capacity each : - 500 Liters**
- **Total Electric Power Reqd : - 1.5 KW (2.0 HP) for Stirrer Shaft**
- **Total Steam Reqd : - 200 KGS per Batch at 2 Kg/cm².**

9 Transfer Pump : -

Qty - 1 No.

❖ Suitable for pumping the product from Kettles.

❖ Pump Consist off -

9.1 Screw pump with MS bonded Nitrile stator and SS304 rotor.

9.2 SS base plate for pump.

9.3 Fixed speed drive with Electric motor, set of V pulleys, V belt and guard etc.

- **Capacity: - 1500 LPH.**
- **Electric Power Requirement: - 1.5 KW (2.0 HP) for Pump.**

10 SS Tank On Trolley (For Fruits Dices) : -

Qty - 2 Nos.

❖ Suitable for transferring of the product like dices / slicer.

❖ Consisting off -

10.1 SS304 rectangular tank with sloped bottom. The tank will be provided with removal type lid. Tank will be provided with outlet connection.

10.2 SS304 square tube frame trolley with handle and castors.

- **Capacity of tank : - 300 Ltrs.**

11 SS Tank On Trolley (For Vegetables) : -

Qty - 2 Nos.

❖ Suitable for transferring of the blanched vegetables. The tank will be provided with removable type perforated tray. The vegetables will remain on the tray while the water will be separated.

❖ Consisting off -

11.1 SS304 rectangular tank with sloped bottom. The tank will be provided with removal type perforated tray at bottom. Tank will be provided with outlet connection.

11.2 SS304 square tube frame trolley with handle and castors.

- **Capacity of tank : - 300 Ltrs.**

12 Cooling Tank :-

Qty - 1 No.

❖ Suitable for cooling of product. The tank will be provided with chilled water circulation jacket. The tank will be provided with manual filling nozzle. There will be a supporting frame for the tank.

❖ Tank Consist off -

12.1 Cylindrical SS304 shell with bottom dish end. The top portion will be provided with lid removable type.

12.2 Tubular legs for mounting of tank.

12.3 Inlet / outlet connections of suitable size.

12.4 Chilled water circulation jacket with inlet and outlet connections.

12.5 Paddle type stirrer assembly coupled in Geared Motor and mounted from top on rigid base frame.

12.6 Manual filling station.

- **Holding Capacity: - 750 Liters.**
- **Electric Power Requirement: - 1.5 KW (2.0 HP).**

13 Batch Peeler : -

Qty – 1 No.

❖ Batch type design suitable for skin peeling of Potatoes. The required quantity of Potatoes is fed from the feed hopper of the peeler. The lid is closed; water is sprayed through the spray header. The abrasive drum and the rotating abrasive disc will help in skin peeling of the potatoes.

❖ The equipment consists of -

13.1 SS304 Drum mounted on rigid framework. The drum is provided with side opening which will help to discharge the peeled Potatoes. The opening is provided with easy removable type lid.

13.2 Bottom rotating disc. Both the drum and the disc are abrasive coated.

13.3 SS water spray header.

13.4 SS304 Feed Hopper and discharge chute.

13.5 Fixed Speed Drive for conveyor belt with base plate & guards for drive.

- **Capacity each – Up to 30 kgs batch.**
- **Electric Power Reqd each – 1.5 KW (2.0 HP).**

14 Custard Apple Extractor (First / Second Stage Cylindrical Type) :- Qty – 1 Set.

❖ **STAGE I :-**

❖ Suitable for extraction of pulp from Custard Apple. The pulp with seeds is removed from the fruit / skin manually and is fed into the cylinder. Due to rotation of cylinder the pulp and seeds are separated. The pulp is discharged into the outer shell. The pulp is removed from the outer shell.

❖ The equipment consists of -

14.1 SS304 cylindrical shell with top flange and sloped bottom. The cylinder will be provided with outlet connection.

14.2 SS304 perforated screen 5 mm x 40 mm slot cylinder supported in flanges. The cylinder will be supported at the bottom in shaft. The whole assembly is supported in bearing at bottom and Teflon bush at top.

14.3 Fixed speed drive with geared motor and set V Belt pulley, SS guard ...etc.

- **Electric Power Requirement: - 0.75 KW (1.0 HP).**

❖ **STAGE II :-**

❖ Suitable for extraction of pulp from Custard Apple. The pulp from the first stage is fed into the cylinder. Due to rotation of cylinder the pulp and seeds are separated. The pulp is discharged into the outer shell. The pulp is removed from the outer shell.

❖ The equipment consists of -

14.4 SS304 cylindrical shell with top flange and sloped bottom. The cylinder will be provided with outlet connection.

14.5 Inner square bar cylinder supported in flanges. The cylinder will be supported at the bottom in shaft. The whole assembly is supported in bearing at bottom and Teflon bush at top.

14.6 Fixed speed drive with geared motor and set V Belt pulley, SS guard ...etc.

- **Electric Power Requirement: - 2.2 KW (3.0 HP).**

15 Custard Apple Extractor (Conveyor Type) :-

Qty – 1 Set.

- ❖ Suitable for extraction of Pulp from custard apple. The material is fed from the feed hopper of the extractor. The material passed through the deseeding zone thus separating the pulp from the seeds. The pulp is conveyed from a PVC belt conveyor while the seeds fall from the discharge chute.
- ❖ The equipment consist off -
 - 15.1SS304 feed hopper mounted on rigid framework.
 - 15.2Deseeding assembly with discharge chute for seeds.
 - 15.3Transfer Conveyor for pulp PVC food grade belt type.

- **Electric Power Requirement: - 0.75 KW (1.0 HP).**

16 Fruit Mill :-

Qty – 1 No.

- ❖ Suitable for crushing of washed Guava. The Guavas are fed manually into the feed hopper of the Fruit Mill. They get crushed in the crushing zone and accordingly are discharged from the discharge hopper.
- ❖ The equipment consists of :-
 - 16.1SS304 housing with perforated plate at bottom from inside.
 - 16.2SS304 rotor with blades for crushing of products mounted on SS304 shaft.
 - 16.3MS rigid bearing Housing with set of bearings.
 - 16.4SS supporting structure for mounting of bearing housing and chamber.
 - 16.5Fixed speed drive complete with Electric motor and couplings, guard.

- **Capacity :- 300 Kgs / Hr.**

- **Electric Power Requirement: - 2.2 KW (3.0 HP) for Rotor.**

17 Screw Pump: -

Qty – 1 No.

- ❖ Suitable for transfer of the product from above crusher to the heat exchanger.
- ❖ The equipment consist off -
 - 17.1Screw pump with MS bonded Nitrile stator and SS304 rotor.
 - 17.2SS304 baseplate for pump.
 - 17.3SS304 Feed Hopper.
 - 17.4Fixed speed drive with Electric motor, set of V pulleys, V belt and guard... etc.

- **Capacity: - 1000 kgs per hr.**

- **Electric Power Requirement: - 1.5 KW (2.0 HP) each.**

18 SS Perforated Pulping Screen:-

Qty – 2 Nos.

- ❖ SS304 for above pulper – 3 mm dia perforation / 0.5 mm dia perforation.

19 SS304 Product Piping And Fittings :-

Qty – 1 Set.

- ❖ SS304 SMS standards suitable for interconnecting the above mentioned equipment.

20 Electric Control Panel : -

Qty – 1 No.

- ❖ Suitable for above motors.
- ❖ The panel consist off -
 - 20.1Contactor, relay, push button etc.

20.2MS powder coated with stand.

SECTION IV :- GINGER / GARLIC PASTE LINE (Raw Material input 2 MTPD).

PROCESS DESCRIPTION:-

Garlic is initially is soaked and inspected. Skin peeling of Ginger is done in peeler. Washed Ginger is then passed in two stages for preparation of Paste. Peeled Garlic is taken directly into the Crusher for preparation of Paste.

1 Ginger Peeler :-

Qty – 1 No.

- ❖ Suitable for skin peeling of Raw washed / soaked Ginger.
- ❖ The equipment is provided with :-
 - 1.1 SS304 rigid framework with SS panels.
 - 1.2 Nylon rollers rotating around its axis. The rollers are interconnected with each other.
 - 1.3 Top water spray header.
 - 1.4 SS304 Feed hopper / Discharge chute.
 - 1.5 Fixed speed drive complete with Electric motor and couplings, guards etc.
 - **Electric Power Requirement: - 1.5 KW (2.0 HP).**

2 Paste Mill (Stage I):-

Qty – 1 No.

- ❖ Suitable for crushing Garlic / Ginger further converting into paste.
- ❖ The equipment is provided with :-
 - 2.1 SS304 housing with perforated plate at bottom from inside.
 - 2.2 SS304 rotor with serrated blades for crushing of products mounted on SS304 shaft.
 - 2.3 The shaft is supported in bearings at both ends.
 - 2.4 SS304 Feed hopper / Discharge chute.
 - 2.5 Fixed speed drive complete with Electric motor and couplings, guards etc.
 - **Electric Power Requirement: - 11.5 KW (15.0 HP) for Rotor.**

3 Screw Feeder:-

Qty – 1 No.

- ❖ Suitable for feeding the paste discharged from the Paste Mill first stage to second stage.
- ❖ The equipment is provided with :-
 - 3.1 SS304 shell and screw assembly with end flanges.
 - 3.2 The screw will be supported in bearings at both the ends.
 - 3.3 SS Feed hopper / discharge chute.
 - 3.4 Fixed speed drive with Geared Motor.
 - **Electric Power Requirement: - 0.75 KW (1.0 HP).**

4 Paste Mill (Stage II):-

Qty – 1 No.

- ❖ Suitable for crushing Garlic / Ginger further converting into paste.
- ❖ The equipment is provided with :-
 - 4.1 SS304 housing with perforated plate at bottom from inside.

- 4.2 SS304 rotor with serrated blades for crushing of products mounted on SS304 shaft.
- 4.3 The shaft is supported in bearings at both ends.
- 4.4 SS304 Feed hopper / Discharge chute.
- 4.5 Fixed speed drive complete with Electric motor and couplings, guards etc.

- **Electric Power Requirement: - 11.1 KW (15 HP) for Rotor.**

5 SS Platform: - Qty – 1 No.

- ❖ Suitable for Paste Mill Stage II.
- ❖ The equipment consist off -
- 5.1 SS304 square tube platform, with ladder and railing.
- 5.2 Aluminum chequered plate.

6 Screw Pump: - Qty – 1 No.

- ❖ Suitable for transfer of paste from above paste mill.
- ❖ The equipment consist off -
- 6.1 Screw pump with MS bonded Nitrile stator and SS304 rotor.
- 6.2 SS304 baseplate for pump.
- 6.3 SS304 feed hopper bolted to flange.
- 6.4 Fixed speed drive with Electric motor, set of V pulleys, V belt guard... etc.

- **Capacity: - 1000 Kgs Per Hr.**
- **Electric Power Requirement: - 2.2 KW (3.0 HP) for Pump.**

7 Dicer (Urchell)

Dicer/slicer/Cutter: Qty – 1 No.

(a) Dicer

Product is delivered to a feed hopper, then enters a rotating impeller. The resulting centrifugal force holds the product against the inside of the case as the impeller paddles carry the product past the slicing knife. An adjustable case gate on the slicing case allows product to move outward across the edge of the slicing knife. The distance between the edge of the slice gate and the slicing knife edge determines the slice thickness.

As the slices emerge, they are guided between the slicing knife and stripper plate before entering circular knives where they are cut into strips. The strips pass directly into the crosscut knives which make the final cut.

TYPES OF CUTS

Slices: Produced by removing the crosscut spindle and the circular knife spindle.

Flat slices: 1/16 to 1" (1.6 to 25.4 mm) & **Crinkle slices:** 1/8 to 1" (3.2 to 25.4 mm). Should have wide selection of cutting parts to choose from.

Strip Cuts: Flat and crinkle strips are made by removing either the crosscut knife spindle or the circular knife spindle assembly. Combinations of circular or crosscut knives can be used to shorten length of strips.

Dices/Granulations: A slicing knife, circular knife spindle, and crosscut knife spindle are used for dicing. Changing the dice size is done by using the required cutting spindles and adjusting the slice thickness.

Circular knife cuts: 1/8 to 3" (3.2 to 76.2 mm) **Crosscut knife cuts:** 3/32 to 1" (2.4 to 25.4 mm)
Crosscut knife crinkle cuts: 9/32 to 9/16" (7.1 to 14.3 mm)

Motor must be stainless steel.

3 compartment machine separating dicing unit / control panel & drive system.

Capacity – 1MT/hr

(b) Slicer

Product is delivered onto two high speed feed belts sloping together to form a "V" shaped feed trough. The belts are synchronized with the rotating slicing wheel to ensure proper advance of product per revolution of the wheel. Knives under tension serve as spokes and support the rim of the slicing wheel. The knives are slightly twisted to create a uniform pitch from the hub to the rim. Knife pitch serves to pull product through the slicing wheel and produce a precise slice thickness. Available hold-down assembly enables increased Positive feeding if needed. One slice is made at a time which prevents any crushing of the product. The cut slices are then released into a sloped discharge chute to reduce their speed before exiting the machine.

Type of Cuts

SLICING WHEELS

Flat & Crinkle Slices: 1/32 to 3" (.8 to 76.2 mm).

Crinkle slices have 4-2/3 waves per inch and with a crinkle depth of 1/16" (1.6 mm). Slicing wheels can be converted to crinkle slicing by replacing the straight knives with crinkle knives and using a different shear edge

Capacity 1 MT/Hrs