

TENDER FOR SUPPLY OF POTATO FLAKES PROCESSING LINE

FOR

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

NOVEMBER, 2017

**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 SUPPLY, INSTALLATION, TESTING AND COMMISSIONING WORKS

- 1.0 Tenders are invited for Supply, Installation, Testing and Commissioning of Potato Flakes Processing Line of 1200 Kg / Hr 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,
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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 **20.12.2017**.

Submission of tender:	<p>1. The tenderer shall submit the documents in two separate envelopes marked as</p> <p>ENVELOPE 'A' – Eligibility Documents and EMD and other all documents except price bid 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 ELIGIBILITY CRITERIA FOR THE TENDERERS

The tenders, who fulfill the following requirements on their own, shall only eligible for opening of Price bid. Joint Ventures are not accepted. Technical collaborations for special expertise for work is allowed. Experience in Joint venture and as sub-contractor shall not be considered.

Sr. No.	Criteria	Proof required
1	The tenderer Should be an operating profit making organization in last three financial years.	Profit & Loss statement certified by CA. (for FY 2014-15, 2015-16, 2016-17)
2	The tenderer should have completed at least one (1) similar project amounting to Rs. 16 Crores or more in last 3 (Three) years OR Two (2) similar projects amounting to Rs. 10.00 Crores or more in last 3 (Three) years. OR Three (3) similar projects amounting to Rs. 6.66 Crores or more in last 3 (Three) years.	Completion Certificate on client's letter head having date after 1 st April, 2014.
3	Solvency Certificate from a Nationalized Bank/ Scheduled Commercial Bank as per RBI norms (Not More than 6 months old) OR Equivalent Net worth certificate from CA	Rs. 4.00 Crores Solvency Certificate required or IT return for last 3 years Or CA Certificate
4	Tenderer shall furnish Work in hand project details	Self Attested Sheet with relevant details

Note:

- Bidder's found of furnishing misleading/ incorrect/ incomplete documents/ information as desired by Tenderer will be disqualified.
- No submissions shall be allowed once the tender documents have been submitted as per the tender submission date.

6.0 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).

7.0 One Bid per Bidder

- 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.
- Tender documents are not transferable.

8.0 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.

9.0 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.

10.0 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.

11.0 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

Specific Conditions

1. Vendor must have demonstrated capability of supplying this kind of processing line. He must furnish the list of successful projects completed in last 10 years with documentary evidence where ever appropriate.
2. As this is a technically advanced production line, technical collaborations are allowed. In such collaborations, specific components can be directly sourced from OEM as part of this tender exercise.
3. As this is a technically advanced production line; even if one competent party submits the tender and if it meets the rest of the eligibility criteria to the satisfaction of the management; the contract will be awarded.

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

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

SECTION – B: TECHNICAL DETAILS OF POTATO FLAKES LINE 1200 KG / HR

Input (approx. 8000 kg/hr)

Product : Raw potatoes, suitable for flakes.
 Diameter : Field Crop 30 – 100 mm, not pre-graded.

Dry matter : 18 – 23%
 Reducing sugars : < 0.3%
 Impurities : < 5.0%
 Bulk Density : 650 – 700 kg/m³

Output (approx. 1200 kg/hr)

Product : potato flakes
 Moisture content : 6 – 8%
 Bulk Density Flakes : 170 – 200 kg/m³ (outlet of Mill-Sifter with 6 mm sieve)
 Bulk Density Powder : 500 – 600 kg/m³ (outlet of Powder Mill with 1.5 mm sieve)

End capacity per drum dryer (approx +/- 5%)

No. of Drum	Dry solids in raw potato in % Peel loss: 10% Mash waste: 5% Moisture content flakes: 6%	18	19	20	21	22	23
	Cap. per drum 2000 x 5700 mm in kg/h	545	585	620	660	700	745
1	Cap. per drum 2000 x 5700 mm in kg/h	545	585	620	660	700	745

Section 1 WASHING / PEELING

Pos. 1.1 DESTONER / WASHER

Number : 1 piece

Stones and clods are sorted out on specific weight by means of an upwards streaming water flow created by an internal pump. This upwards flow can be controlled and adjusted very accurately. The machine is fitted with a rod belt to discharge the waste. The upward flow carries the product to the washing drum. The product is washed in a hexagonal shaped, rotating drum with continuous contact with water. Because of this special shaped drum the product can be washed very intensively, even with a low filling degree. The drum is made out of perforated plate reinforced with rings, supported by wheels and driven by a belt. Flights in the drum transport the product and increase the washing effect. A rod belt discharges the washed product out the machine.

Length : approx.6.900 mm
Width : approx.3.100 mm
Stone Conveyer : rod belt, width 500 mm (left)
Drum length : approx. 2.500 mm
Drum Diameter : approx. 1.000 mm
Product Conveyer : rod belt width 700 mm
Drum drive : motor + gearbox + timing belt (1x)
Belt drives : motor + gearbox (2x)
Conveyors have and washing proximity switches for speed control.
Destoning Propeller : directly coupled motor

The machine is fitted with a pressure transducer for water level control and preventing the pump from running dry.

Pos. 1.2 INCLINED CONVEYOR,

Number : 1 piece

Execution : including supporting and input hopper
Length : approx. 6.000 mm
Width : approx. 500 mm
Type : rubber belt with flights
Direct drive : motor + gearbox

Pos. 1.3 STEAM PEELER,

Number : 1 piece

- Carbon steel vessel for max. 20 bar working pressure
- Stainless steel frame & cladding
- Stainless steel batching hopper
- Steam expansion system with special exhaust valve
- Out feed chute to peel remover
- Side mounted fixed speed drive motor
- Stainless steel control panel with special software
- Carbon steel exhaust vessel, incl. stack to the roof
- required certifications
- piping between exhaust valve and exhaust tank

Pos. 1.4 INCLINED SCREW CONVEYOR,

Number : 1 piece

Length : approx. 8.000 mm
Diameter : Ø 600 mm
Including : supporting and input hopper
Direct drive : motor + gearbox

Pos. 1.5 DRY PEEL REMOVER

ZicZac Brusher,

Number : 1 piece

The ZicZac dry-peel remover will separate the peel from the potatoes after steam peeling. The peeled potatoes will gently conveyed by gravity and guided by brushes. During downwards conveying the brushes will take the peel from the potatoes. The potatoes will be discharged in the middle part of the bottom end. The peel waste is collected by a chute guiding the peel waste to the hopper of the pump.

Advantages

- Peel loss savings
- Simple operation
- Hygienic design
- Accessibility of components

Machine Specifications:

- Brush length 600 mm.
- Brush diameter Ø 300 mm.
- Number of brushes 11
- Brush material Nylon

Feeding Chute

Number : 1 piece

This special infeed chute design spread the product over the available brush length.

Sub Frame

Number : 1 piece

To support the ZicZac Brusher on the required level.

Pos. 1.6 WASTE PUMP

The peel waste of the dry-peel remover will be collected and pumped to a waste tank

Pump type : Mono-pump
Maximum pumping distance : approx.30 meter
Maximum pumping height : 8 meter
Hopper type : Cone + level sensor
Drive direct with coupling

Pos. 1.7 WASHING SCREW CONVEYOR,

Number : 1 piece

Execution : including supporting and input hopper, overflow and spray-bar.

Length : 5.000 mm

Diameter : Ø 500 mm

Direct drive : motor + gearbox

Reclaim Sieve

Number : 1 piece

Washing water will catch in a hopper and guided to this reclaim sieve to separate the water from fine product particles. A circulation pump system will return the water to the washer.

Sieve screen dimensions : 600 x 1000 mm

Sieve : wedge wire 1 mm

Section 2 INSPECTION / CUTTING / DOSING

Pos. 2.1 INSPECTION CONVEYOR,

INSPECTION BELT CONVEYOR

Number : 1 piece

Length : approx. 3.000 mm

Width : approx. 800 mm

Height : approx. 1.000 mm

Belt : flat, PVC

Direct drive : motor + gearbox

Sub Frame conveyor

Number : 1 piece

Pos. 2.2 MECHANICAL CUTTING SYSTEM,

Number : 1 system

The system consists of 1 line, handling the full diameter range of product.

The line consist of:

Pos. 2.2.1 Feeding Chute

Number : 1 piece

The chute is receiving from the inspection conveyor and guiding the potatoes to the inlet of cutter.

Pos. 2.2.2 CUTTER,

Number : 1 piece

Machine Specifications:

- Dimensions length : ± 1154 mm, Wide ± 867 mm, height ± 700 mm
- Cutting size adjustable : 5 t/m 20 mm
- Drive : Motor and belts

Material: SST 304, except: Drive, belts, bearings and seals

Pos. 2.2.3 Movable Sub-Frame

Number : 1 piece

Making the accessibility of the cutter easier for cleaning and maintenance, the support frame is executed with wheels to move the cutter side wards.

Pos. 2.2.4 Inclined Screw Conveyor

Number : 1 piece

Execution : including supporting and input hopper, drain and spray-bar.

Length : 5.000 mm

Diameter : Ø 500 mm

Direct drive : motor + gearbox

Pos. 2.3 DOSING HOPPER,

Number : 1 piece

The dosing hopper receive the product and will dose the product by a screw conveyor in the bottom to the cooking section.

The dosing hopper consists of:

- hopper
- level detection
- bottom screw
- sub frame

Direct drive : motor + gearbox

Section 3 COOKING

Pos. 3.1 SCREW BLANCHER + Inclined screw,

Number : 1 piece

The heating system is controlled by temperature compensation PID pneumatic valve. The cross water cycling system is configured to make the temperature inside the blancher even. All parameters are controlled and adjusted in the central PLC.

Diameter : approx. 1.400 mm
Length : approx. 5.500 mm
Equipped with : steam control, pump system, overflow, drainage valve
Retention time : max. 25 min
Temperature : 60 – 80 degrees
Includes : Inclined screw to the cooler
Direct drives : motor + gearbox

Pos. 3.1.1 BY-PASS LOW LEACHE,

Number : 1 piece

This system is by-passing the Blancher and Cooler by using an two-way valve and flume. The system will combined with the pump system from Cooler to Cooker.

Pos. 3.2 SCREW COOLER + inclined screw,

Number : 1 piece

All parameters are controlled and adjusted in the central PLC.

Diameter : approx. 1.400 mm
Length : approx. 5.500 mm
Equipped with : water flow diverter, control valve, overflow, drainage valve
Retention time : max 25 min
Includes : Inclined screw to the cooker
Direct drives : motor + gearbox

Pos. 3.3 HOPPER + ROTARY VALVE,

Number : 1 piece

To create a seal and equal flow to the steam cooker a hopper and rotary valve will be installed on the cooker inlet.

Direct drive : Motor + gearbox (rotary valve)

Pos. 3.4 COOKER,

Number : 1 piece

All parameters are controlled and adjusted in the central PLC.
The cooker design is a non-pressure vessel.

Diameter	: approx. 1.400 mm
Length	: approx. 7.000 mm
Equipped with	: manifold for steam, steam-control P.I.D system, temperature measuring device and condensate discharge.
Retention time	: max. 35 min
Direct drive	: motor + gearbox

Section 4 MASHING

Pos. 4.1 RICER,

Number	: 1 piece
Length	: 3.000 mm
Diameter	: Ø 300 mm
Mashing by	: rod sieve
Number of sieves	: 1 set of 2 halves
Direct drive	: motor + gearbox

Pos. 4.2 ADDITIVES STATION,

Number	: 1 piece
- 1 heated preparation tank 500 litres	
- 1 heated holding tank 500 litres	
- 2 pumps (1 pump adjustable)	
- 2 mixing gears (1 mixer adjustable)	

Both heated tanks have electrically heated jackets around the outside of the tank. The process water should be filled with heating water coming from the heating system in the factory.

Pos. 4.3 MASH PUMP SYSTEM,

Number	: 1 system
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The screw end of the ricer is connected with mash tank to collect the mash. The bottom of the tanks is provided with two (2) screw conveyors to feed two (2) mash-pumps. The pump conveys the mash to a drum dryer through piping of approx. 10 meter. All parts of the pump that get into contact with the product are made from stainless steel.

Piping	: between pump and drum dryer
Direct drive	: motor + gearbox
Sample valve	: the pressure pipe will be provided with a valve to get a sample of the mash.

Section 5 DRYING

Pos. 5.1 DRUM DRYER,

Number : 2 pieces

The description is per drum.

Cylinder

Diameter : Ø 2.000 mm

Length : 5.700 mm

Material : Cast Iron

Inspection : Certificates according to the European CE-PED regulations for steam vessels.

Surface : 35.81 m²

Head sides : Stainless Steel

Application rolls each with a direct drive

Number : 4 pieces diameter ø 318 mm
1 piece diameter ø 450 mm

Shafts : dismountable

Mat. Roller : Stainless Steel

Mat. Shafts : Stainless Steel

Fine adjust : By means of spindle and slide blocks

AutoTrax (Patent System)

Automatic Scraping system on application rollers. The scraping system combines on spot scraping with full blade scraping where the process require.

Scrapers : Pneumatically operated

Material scrapers : Nylon

Material bars : Stainless Steel

The scraping system is mounted on a cat which moves along the application rollers on which will be operated by pneumatic cylinders on each side. The operating instruction can be given by an operator or by the PLC. The operators panel is foreseen with a switch button "manual / automatically" For automatic running the cycle's time has to set in the PLC.

Side sealing application rollers

Supports : adjustable to minimize leakage

Material sealing : Teflon / Nylon

Material supports : Stainless Steel

Bearings

Main bearing : roller bearing

Application rolls : roller bearing

Lubrication system main bearing

Lubricating : by means of automatic grease pot per main bearing

Distribution screw on the top of the drum:

Screw type	: Ribbon screw left/right (one pitch returning at the end)
End plate	: adjustable/replaceable bronze sealing plates on cylinder to prevent leakage to the knife.
Drive	: Gearbox + motor
Material	: Stainless Steel

Knife on dry side of the drum

Knife holder	: knife will be clamped by several bolts
Fine adjusting	: by means of a special design flexible knife blade
Knife holder frame	: circular movement by means of 2 pneumatically cylinders for cleaning activities and knife replacement.
Material knife holder	: Stainless steel
Included	: 3 spare knives
Knife material	: hardened steel

General

Material	: Drum side frames made of stainless steel
Steam trap	: steam control valve, rotary Joint with condensate-discharge including two flexible expansion pipes on behalf of the steam supply and condensate discharge. Includes the condensate pot.
Excludes	: steam reducing valve.
Direct main drive	: Gearbox + motor

Pos. 5.1.1 Vapour Hood and Stacks

Number	: 1 hood covering the whole drum 2 chimneys + fans
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The moisture evaporated out of the mash will take away by a hood and fans. The chimney design is with water-lock to avoid condense is dripping continuously on the drying process. The hood design is with a gutter which will collect the condense in the hood and from the chimneys local constructor.

Length = maximum 4.000 mm under the roof (depends on inside height of the building).
Length = maximum 2.000 mm on the roof.
Diameter = 800 mm

Fans	: 2 pieces axial fans of 800 mm, support outside on the roof.
Material	: Stainless Steel 3 mm
Motor of Fans	: IP65

Pos. 5.1.2 Pre-breaker System

Number	: 1 unit
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Good product screw conveyor, pre-breaker in one unit.

The system consist of:

- Pre-breaker
- Collecting trays dry waste
- Vapour exhaustion

Pre-Breaker

Screw diameter	: ø 400 mm
Screw type	: Cradle flights
Housing	: U shape executed with breaking pins
Direct drive	: Gearbox + motor
Pre breaking device	: applied at discharge end of conveyor
Wind shifter	: separator for heavy pieces and connection to air transport
Material	: Stainless Steel

The waste screw conveyor will collect degraded product produced by the drum dryer and forms an integrated part of the Pre-Breaker System.

Vapour Exhaust System under the film

Number of Fans : 1

Specifications of the Fan:

Material Fan	: Stainless Steel
Material impellor	: Aluminium

The pre-breaker has been provided with adjustable valve to be able to control the air stream and to create access for cleaning activities.

An integrated, manual operating valve will control the air stream in the suction pipe.

Pos. 5.1.3 Collecting Screw Wet Waste

Screw diameter	: ø 400 mm
Screw type	: Ribbon screw
Housing	: U shape
Drive	: Gearbox + motor
Material	: Stainless Steel

Pos. 5.1.4 Platform and Conveyor support

The platforms are along the two operation sides of the drum dryer and one at the steam/condensate side.

Material : Stainless Steel, galvanised walking grid.

Section 6 MILLING / PACKING

Pos. 6.1 AIRTRANSPORT,

Number : 2 pieces

The air-transport will be connected to the discharge-end of the pre-breaker along the dry-side of the drum dryer. This vacuum system conveys the flakes to the hopper connected on the top of the mill sifter. The hopper is provided with a fan and dust filter. In the hopper the flakes will be separated from the air and the air will be released through the filters into the ambient.

The flakes fall into the bottom of the hopper and will be discharged by a discharge system to the mill sifter.

The air-transport consists of:

- **pipework from drum to mill sifter**
- **hopper**
- **fan and dust filter unit**
- **discharge system**
- **support**

Pos. 6.2 MILLSIFTER,

Number : 2 pieces

Length : 2.000 mm

Diameter : \varnothing 500 mm

Direct drive : motor + gearbox

The sifter is provided with 1 set (2 halves) of perforated screens, each with a \varnothing 6 mm perforation, creating a flakes density of approx. 170 - 200 gram/Litre.

Pos. 6.3 DISCHARGE SCREW,

Number : 2 pieces

Length : 2.500 mm

Diameter : \varnothing 300 mm

Direct drive : motor + gearbox

Pos. 6.4 AERO-MECHANICAL CONVEYOR,

Number : 1 piece

The conveyor collects product from the mill-sifters and lifts the product to the dry product silo.

Length : vertical approx. 7.000 mm

Pos. 6.5 DRY PRODUCT SILO,

Number: 1 piece

Content: approx. 15 m³

The top of the silo will be provided with a system to divert the flakes over the length of the silo.

In the bottom a discharge screw will convey the flakes to the packing unit.

Pos. 6.6 AERO-MECHANICAL CONVEYOR,

Number : 1 piece

The conveyor collect product from the silo and lift the product to the packing unit.

Length : vertical approx. 9.500 mm

Pos. 6.7 POWDER MILL UNIT,

Number : 1 system

Just after the outlet of the Aero-Mechanical conveyor the flakes will be guided over a powder mill. This enables you to pack flakes or grinded flakes (powder) with different specific weights. The powder mill is provided with a perforated screen which one is replaceable by another one matching the required specifications of the powder. Due to the high revolutions per minute the mill will generate a lot of air volume. This volume creates a lot of dust (good product) you do not want to lose. Therefore the powder-mill unit is equipped with a fan and dust filter. The product air flow separation is to reclaim the high valuable powder.

The unit includes:

- Piping
- powder mill
- 3 pieces of screen
- receiving bin
- dust filter + fan

The powder mill is provided with 1 perforated screen with an Ø 1.5 mm perforation, creating a standard flakes density of approx. 500 gram/Litre.

SUPPORT CONSTRUCTION,

Number : 1 piece

The construction is to support the powder mill which one is positioned above packing device.

BY-PASS, type BPS

Number : 1 piece

A Y-valve with piping enables you to by-pass the powder mill and direct the standard flakes to the packing unit. The valve have to be switched manually on demand.

Section 7 TOOLS and SPARE PARTS

Pos 7.1 SPARE PARTS

The essential spare parts will provided to maintain the line during the first year after installation.

The parts are the most critical components and to replace part of normal wear.

Pos 7.2 KNIFE GRINDER

This device enables to sharpen the knives of the drum dryer after a certain while of production.

Section 8 CONTROL SYSTEM

Pos. 8.1 CONTROL CABINETS

Number : 1 piece

The production line is controlled in the central MCC-room which is an architected part of the building.

In the room a number of cabinets will install and connected by cables through gutters to the electro and electronic components in the line.

Design and engineering

The design of the control system is based on the international standard CEI/IEC 60204-1 "Safety of machinery-Electrical equipment of machines"

Hardware design is based on use of engineering software AutoCad® and wiring diagrams by Eplan®.

Main cabinet (MCC)

All control equipment is mounted in the "main" cabinet.

This cabinet contains 2 sections, one for distributing power and one for instrumentation. The main cabinet is ventilated and has to be placed in a dry, air conditioned room.

The power section contains the main power distributing rail bars, motor starters and frequency drives.

The instrumentation is connected by field bus (profibus) for communication with the central controller in the main cabinet.

By keeping motor drives, instrumentation and electric controls centralized in the main cabinet, the system is easy to maintain and the life cycle of the components will improve.

Controlling and supervising

The control system is based on a Siemens S7-300 programmable logic controller and ET200S remote I/O stations. Each motor and actuator is controlled through the operator panel (touch panel), which is located near the drum dryer. The motors and valves are symbolically shown on the touch screen. Starting and stopping is done by simply touching the symbol. For example an activated motor will turn green; a closed valve will turn red. If a failure occurs the symbol will start to flash and a text will instruct the operator, how to handle the problem.

Software

The application software will be built in IEC1131 ladder and STL diagrams. Function blocks will be used for communicating and controlling the motor drives and remote in- and outputs.

Safety

For safety purposes the system will be provided with an emergency stop safety unit. Activating one of the emergency buttons or pull cords will cause an emergency stop immediately.

Resetting of the emergency stop circuit is done for each section locally because of the process checks that have to be performed.

Near the motor a safety switch is mounted for switching of power during maintenance jobs.

Remote service

Service is provided by internet or telephone modem.

By using (standardised) OPC server in the Danfoss® frequency drives and Siemens PLC, a transparent network is build. OPC is used as a tool to monitor and read/write parameters in the drives by remote control if necessary.

Section 9 SERVICES

Pos. 9.1 PROJECT ENGINEERING

Included in the project engineering are:

- **Meetings and conversations at site**
- **Lay-out proposals after discussion at site**
- **Technical documents**
- **Schedules**
- **Organisation**
- **Planning for execution**
- **Manuals in digital form on CD-ROM, language: English**

Part of the project engineering is the basic engineering. The basic engineering contains all information necessary for the end-user to prepare their local activities and responsibilities.

Pos. 9.2 DELIVERY

CIF Mundra, INDIA, according to the Incoterms 2010

All machinery will stow into trucks. Small parts and dismounted parts (depends on dimensions) which will be packed in wooden boxes.

Pos. 9.3 INSTALLATION OF THE PRODUCTION LINE

Vendor's supervisor(s) will be present for supervision and erection of the line; for a maximum ten (10) man weeks in normal day time of 10 hours each for mechanical and electrical installation. The progress of the installation depends on the availability of local skilled engineers, tools, craning and lifting equipment and availability of the utilities.

The roofs must be closed and the access to the work spot must be paved and without any obstacle.

The costs for travelling to the International airport will be borne by Vendor.

All local costs for travelling and lodging from the International airport in country of destination will be borne by the Client.

Pos. 9.4 COMMISSIONING OF THE PRODUCTION LINE

Vendor's supervisor(s) will be present for supervision of commissioning the line; for a maximum of four (5) man weeks in normal day time for instruction. The progress of the commissioning depends on the availability of local skilled operators, potatoes and utilities.

All local costs for travelling and lodging from the International airport in country of destination will be borne by the client.

GENERAL EXECUTION

- All the equipment is fabricated from stainless steel, except components like: drives, bearings, pumps, seals, belts, knives, measurement devices, fans, packing unit, control cabinet or otherwise stated.
- Given dimensions are all approximately and subject to changes keeping capacity and performance of the production line.

RESPONSIBILITIES OF THE CLIENT INCLUDING THE COSTS FOR:

- Platforms alongside the production line. (Note: platform for the drum dryer is included).
- All architectural provisions
- Lighting and power during the installation and start-up
- Voltage stabilizer
- Tools (all kind), lifting and craning work
- Cables and cable racks in between the machines and control cabinet
- Utilities like power, steam, cold water, hot water, compressed air
- All piping and insulation for steam, cold water, hot water, air, compressed air, solid waste, fluid waste, etc. to the machines of the production line
- Insulation of piping
- Suction ducts and hoods others as mentioned
- Waste handling systems, bins
- Waste storage
- Heating systems
- Water treatment plant
- Supply of the energy and raw potatoes in time to start-up continuously
- Supply of packing material in time to pack the produce flakes during the start-up
- Local engineers to install the equipment under Tummers' supervision for mechanical and electrical.
- Hospitality (Hotel, meals, taxi hotel - "site") according to European standard for our supervisor or engineer.

SECTION 10 PRICING AND CONDITIONS

Total Price

Should be mentioned separately for Indian and Imported Components excluding -

- Equipment which has not been explicitly described
- Import duties / GST

Time of delivery

Latest date of shipment 31st August 2018.

The given delivery period is from receipt of the date of the advanced payment, being before the 31st December 2017 and the receipt of an IL/C before the 31st January 2018.

Terms of delivery

CIF Mundra, India, according Incoterms 2010

Payment terms

Payments by an irrevocable L/C, confirmed by and payable at counters

The L/C will be issued within 4 Weeks after signing contract and represents 100 percent of the total contract price.

20% advance payment before 31st December 2017

Under the L/C following payments will be made:

20% against presentation of the Basic Engineering Acceptance Certificate.

50% payable against the shipping documents (B/L)

5% payable against presentation of acceptance report for arrival of the machines at site but not later than 3 months from the date of the B/L in which case presentation of acceptance report for arrival of the machines at site is not required.

5% payable against presentation of acceptance report for commissioning of the line at site but not later than 6 months from the date of the B/L in which case presentation of the acceptance report for commissioning of the potato flakes line is not required.