

BIHAR INDUSTRIAL AREA DEVELOPMENT AUTHORITY

1st Floor, Udyog Bhawan, East Gandhi Maidan, Patna-04

Website: www.biadabihar.in Email: biada-bih@gov.in 2 -0612-2675998 & 2675991

Short Notice inviting Quotation No.- 15/BIADA/2024-25

Quotation for the rate finalisation is invited for the work of Design, Supply, Installation, Testing, Commissioning of various Plant & Machineries for the BIADA Mega Food Park, Motipur, Muzaffarpur from the Original Equipment Manufacturer (OEM)/Authorised Dealer/Supplier till 21/01/2025, 5:00 PM

Quotations for Supply and Installation of following machines shall be submitted in a sealed envelope to: DGM- Technical, 3rd Floor, Udyog Bhawan, East Gandhi Maidan, Patna- 800004

Sl. No.	Description	Unit	Quoted Rate per Unit in Figure.	Quoted Rate per Unit in Words.
1	Design, Supply, Installation, Testing, Commissioning of Plant & Machineries including Puff Panel works and Mezzanine floor for Stacking Arrangements for Potato Cold Storage-5000 MT.	01		
2	Design, Supply, Installation, Testing, Commissioning of Plant & Machineries including Puff Panel works and Mezzanine floor for Stacking Arrangements for Onion Cold Storage-5000 MT.	01		·
3	Design, Supply, Installation, Testing, Commissioning of Plant & Machineries including Puff Panel works for Banana Ripening Chamber-80 MT	01	- W-17-P	
4	Design, Supply, Installation, Testing, Commissioning of Plant & Machineries including Puff Panel works for Litchi Packhouse- 6 MT/Batch	01		
5	Design, Supply, Installation, Testing, Commissioning of Plant & Machineries for the IQF with Pre-processing line- 2MT/Hr.	01		
6	Design, Supply, Installation, Testing, Commissioning of Plant & Machineries Including Puff Panel works for the Frozen Storage - 4000 MT.	01		
7	Design, Supply, Installation, Testing, Commissioning of Plant & Machineries including Puff Panel works and Stacking Arrangements for Potato Cold Storage-3000 MT and the packhouse for potato capacity 2MT/Hr.	01		

Note: Detail breakup of all above items & the machineries including specification details for above mentioned components is available on the BIADA website: http://biada1.bihar.gov.in

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Rules:

- This notice has been invited for the finalization of rates only.
- The rate quoted shall be inclusive of all charges, taxes and freight.
- The quotation shall be submitted along with GST Certificate.

For further details or information regarding above subject, interested one may contact on dgmnorth.tech@bihar.gov.in

Memo No. 34/ Tech

Date Of 1/24

Date Of 1/2021

DGM-Technical

(5000 MT Potato Cold Store)

<u>Design, Supply, Installation, Testing, Commissioning of Plant & Machineries including</u>

<u>Puff Panel works and Mezzanine floor for Stacking Arrangements for Potato Cold</u>

<u>Storage-5000 MT.</u>



BASIS OF DESIGN

1. Cald Store 1 - 4

Product

Potato

Storage Capacity

1250 MT

Daily Loading

62.5 Ton/Day/Chamber

No. of Rooms

20 x 18 x 12 m H

Room Dimension : 20 x 18 x 1

Product Inlet Temp. : 25°C

Room Temperature : 2°C

Relative Humidity : 85 - 90%

Cooling Load : 22 TR Each

22 TR Each

SECTION A

TECHNICAL SPECIFICATIONS FOR REFRIGERATION SYSTEM

Design, Supply, Installation, Testing, Commissioning of Plant & Machineries including Puff Panel works and Mezzanine floor for Stacking Arrangements for Potato Cold Storage-5000 MT.

S.	Description		Unit	Qty	Unit	Amount	Remarks			
No.	-				Rate					
1	High Stage Compressor F high speed single stage r reciprocating ammonia of with Fly-wheel, Safety va Suction and Discharge va comprising of motor pul guard, tools, wrenches & gauge cum control panel arrangement, ammonia	nulti cylinder compressor, complete alve, Oil sight glass, alves, Driver accessories ley, V-belts and belt foundation bolts &	Nos.	1			COMPAK SRC 92 N 05, Single Stage Reciprocating Compressor Package for Potato rooms, capacity 93 TR @ -5 deg C SST / 38 deg C SDT, complete with 90 kW 4-pole belt-			
	skid mounting.		_			į.	driven IE2 motor, oil separators,			
	Intermediate Temp.	: (-) 5°C			-			3		Kirloskar
	Condensing Temp.	: 38°C							KCX4/equivalent, [1	
	Capacity	: 93.6 TR								working]
	Power Consumed	: 108.5 BHP						Ì		
2	Rpm	: 1100								
	cyclone type oil separato with companion flanges		Nos.	1						

TEFC Sq. Cage induction I electric supply of 3ph x 4	nt 50°C, IMB3 mount, motor suitable for 15V x 50HZ, AC supply	Nos,	1		
L&T/ Equiv make star del motors.	ta starter for the above	Nos.	1		
high speed single stage reciprocating ammonia c with Fly-wheel, Safety va Suction and Discharge va comprising of motor pul guard, tools, wrenches & gauge cum control panel arrangement, ammonia h skid mounting.	nulti cylinder ompressor, complete lve, Oil sight glass, lves, Driver accessories ley, V-belts and belt foundation bolts & and capacity control lead & oil cooling and : (-) 5°C	02 Nos. (1W+1S)	2		COMPAK SRC 58 N 05, Single Stage Reciprocating Compressor Package for Potato Rooms, capacity 57 TR @-5 deg C SST / 38 deg C SDT, complete with 55 kW 4-pole belt- driven IE2 motor, oil separators, Kirloskar KCX3/equivalent,
		_			[1W+1S]
	·····	-			_
		<u> </u>			
крт	: 1000				
1	_	2 Nos. (1W+1S)	2		
Class F Insulation, Ambie TEFC Sq. Cage induction r electric supply of 3ph x 4	nt 50°C, IMB3 mount, notor suitable for 15V x 50HZ, AC supply	02 Nos. (1W+1S)	2		
· · · · · · · · · · · · · · · · · · ·		02 Nos.	2		
motors.		(1W+1S)			
LP Receiver For Cold Store	<u> </u>	01 No	1		Low Pressure Liquid Receiver Package @
Long constructed with liq valves, safety valve, gaug pressure gauge with valve pump out connection wit	uid inlet & outlet e glass with valves, e saddle supports, and h valve. Also les and valves for easy				-5 deg C, with vessel suitable for 150 TR, Rinac make, with Ammonia Pumps [1 working + 1 standby]
	Class F Insulation, Amble TEFC Sq. Cage induction relectric supply of 3ph x 4 with slide rails for compressor for L&T/ Equiv make star del motors. High Stage Compressor for high speed single stage in reciprocating ammonia cowith Fly-wheel, Safety vare Suction and Discharge vare comprising of motor pull guard, tools, wrenches & gauge cum control panel arrangement, ammonia his skid mounting. Intermediate Temp. Condensing Temp. Capacity Power Consumed Rpm Cyclone type oil separato with companion flanges and ABB/ Siemens make 75 H Class F Insulation, Ambie TEFC Sq. Cage induction relectric supply of 3ph x 4 with slide rails for compressor to the star delimators. LP Receiver For Cold Store ammonia low pressure relong constructed with liquid valves, safety valve, gauge pressure gauge with valve pump out connection with valve pump out connection with slide rails for compressure gauge with valve pump out connection with slide rails for constructed with liquid valves, safety valve, gauge pressure gauge with valve pump out connection with slide rails for constructed with liquid valves, safety valve, gauge pressure gauge with valve pump out connection with slide rails for constructed with liquid valves, safety valve, gauge pressure gauge with valve pump out connection with slide rails for constructed with liquid valves, safety valve, gauge pressure gauge with valve pump out connection with slide rails for constructed with liquid valves, safety valve, gauge pressure gauge with valve pump out connection with slide rails for constructed with liquid valves, safety valve, gauge pressure gauge with valve pump out connection with slide rails for constructed with liquid valves, safety valve, gauge pressure gauge with valve pump out connection with slide rails for constructed with liquid valves, safety valve, gauge pressure gauge with valve pump out connection with slide rails for constructed with liquid valves.	Class F Insulation, Amblent 50°C, IMB3 mount, TEFC Sq. Cage induction motor suitable for electric supply of 3ph x 415V x 50HZ, AC supply with slide rails for compressor L&T/ Equiv make star delta starter for the above motors. High Stage Compressor for Cold Store high speed single stage multi cylinder reciprocating ammonia compressor, complete with Fly-wheel, Safety valve, Oil sight glass, Suction and Discharge valves, Driver accessories comprising of motor pulley, V-belts and belt guard, tools, wrenches & foundation bolts & gauge cum control panel and capacity control arrangement, ammonia head & oil cooling and skid mounting. Intermediate Temp. : (-) 5°C Condensing Temp. : 38°C Capacity : 56.7 TR Power Consumed : 67.1 BHP Rpm : 1000 Cyclone type oil separator flanged connections with companion flanges and oil drain valve. ABB/ Siemens make 75 HP, 4-pole, IE2, IP 55, Class F Insulation, Ambient 50°C, IMB3 mount, TEFC Sq. Cage induction motor suitable for electric supply of 3ph x 415V x 50HZ, AC supply with slide rails for compressor. L&T/ Equiv make star delta starter for the above	Class F Insulation, Amblent 50°C, IMB3 mount, TEFC Sq. Cage induction motor suitable for electric supply of 3ph x 415V x 50HZ, AC supply with slide rails for compressor L&T/ Equiv make star delta starter for the above motors. High Stage Compressor for Cold Store High Stage Compressor for Cold Store O2 Nos. (1W+1S) All Speed single stage multi cylinder reciprocating ammonia compressor, complete with Fly-wheel, Safety valve, Oil sight glass, Suction and Discharge valves, Driver accessories comprising of motor pulley, V-belts and belt guard, tools, wrenches & foundation bolts & gauge cum control panel and capacity control arrangement, ammonia head & oil cooling and skid mounting. Intermediate Temp. : (-) 5°C Condensing Temp. : 38°C Capacity : 56.7 TR Power Consumed : 67.1 BHP Rpm : 1000 Cyclone type oil separator flanged connections with companion flanges and oil drain valve. ABB/ Siemens make 75 HP, 4-pole, IE2, IP 55, Class F Insulation, Ambient 50°C, IMB3 mount, TEFC Sq. Cage induction motor suitable for electric supply of 3ph x 415V x 50HZ, AC supply with slide rails for compressor. L&T/ Equiv make star delta starter for the above motors. LP Receiver For Cold Store ammonia low pressure receiver 42"dia x 12' Long constructed with liquid inlet & outlet valves, safety valve, gauge glass with valves, pressure gauge with valve saddle supports, and pump out connection with valve. Also	Class F Insulation, Amblent 50°C, IMB3 mount, TEFC Sq. Cage induction motor suitable for electric supply of 3ph x 415V x 50HZ, AC supply with slide rails for compressor 1.8.T/ Equiv make star delta starter for the above motors. High Stage Compressor for Cold Store High Stage Compressor for Cold Store O2 Nos. (1W+1S) high speed single stage multi cylinder reciprocating ammonia compressor, complete with Fly-wheel, Safety valve, Oil sight glass, Suction and Discharge valves, Driver accessories comprising of motor pulley, V-belts and belt guard, tools, wrenches & foundation bolts & gauge cum control panel and capacity control arrangement, ammonia head & oil cooling and skid mounting. Intermediate Temp. (-} S°C Condensing Temp. 38°C Capacity 56.7 TR Power Consumed 67.1 BHP Rpm 1000 Cyclone type oil separator flanged connections with companion flanges and oil drain valve. ABB/ Siemens make 75 HP, 4-pole, IE2, IP 55, Class F Insulation, Ambient 50°C, IMB3 mount, TEFC Sq. Cage induction motor suitable for electric supply of 3ph x 415V x 50HZ, AC supply with slide rails for compressor. 1.8.T/ Equiv make star delta starter for the above motors. LP Receiver For Cold Store ammonia low pressure receiver 42°dia x 12′ Long constructed with liquid inlet & outlet valves, safety valve, gauge glass with valves, pressure gauge with valve saddle supports, and pump out connection with valve. Also	Class F Insulation, Amblent 50°C, IMB3 mount, TEFC 5q. Cage induction motor suitable for electric supply of 3ph x 415V x 50HZ, AC supply with slide rails for compressor 1&T/F Equiv make star delta starter for the above motors. High Stage Compressor for Cold Store 1 high speed single stage multi cylinder reciprocating ammonia compressor, complete with Fly-wheel, Safety valve, Oil sight glass, Suction and Discharge valves, Driver accessories comprising of motor pulley, V-belts and belt guard, tools, wrenches & foundation bolts & gauge cum control panel and capacity control arrangement, ammonia head & oil cooling and skid mounting. Intermediate Temp. : (-) 5°C Condensing Temp. : 38°C Capacity : 56,7 TR Power Consumed : 67.1 BHP Rpm : 1000 Cyclone type oil separator flanged connections with companion flanges and oil drain valve. (1W+15) ABB/ Siemens make 75 HP, 4-pole, IE2, IP 55, Class F Insulation, Ambient 50°C, IMB3 mount, TEFC Sq. Cage induction motor suitable for electric supply of 3ph x 415V x 50HZ, AC supply with slide rails for compressor. L&T/ Equiv make star delta starter for the above motors. L&T/ Equiv make star delta starter for the above motors. LP Receiver For Cold Store ammonia low pressure receiver 42°dia x 12′ Long constructed with liquid inlet & outlet valves, safety valve, gauge glass with valves, pressure gauge with valve saddle supports, and pump out connection with valve. Also

<u>10</u>	Hermetically sealed liquid ammonia pump for ammonia recirculation with motor and accessories comprising of suction strainer, suction and discharge valves, check valve.	02 Nos. (1W+15)	2	
11	Set of Danfoss /Manik make controls for liquid re-circulation system comprising of:	Set	: 1	
	Electronic Float switch: 03 Nos. Pressure Differential Controller: 02 Nos. Differential Pressure Regulating Valve: 01 No. Liquid line solenoid valve: 01 No.Frost-free gauge glass: 01			
12	Wall mounted / ceiling suspended frigid coil air Cooling unit complete with SS Tubes & AL finned cooling coil. Total GI enclosure, drain pan, axial flow fan with motor, water defrost arrangement etc.	Nos.	20	Ammonia Pumped type Evaporator for Freezer rooms with GI Casing, SS Tubes & AI Fins – 6.2 TR
	Cold store 1-4 Capacity: 6.2 TR @5 deg C	_		6.2 IR
<u>13</u>	Set of Danfoss /Manik make Controls for Coil:	Set	4	Ammonia Valves & Controls,
	Liquid line solenoid valve, Digital Temp. Indicator cum controller	7.		Danfoss/equivalent
14	evaporative ammonia condenser complete with hot dip galvanized condensing coil, GP casing &water sum tank, fan section with fans, motor, eliminators and water circulation pump with PVC fittings.	Nos.	1	Evaporative type condenser of capacity 270 TR
	Capacity: 229 TR Condensing Temp : 38 °C Wet Blub Temp. : 27.8 °C			
	Ammonia receiver of size 24" Dia. x 20' Long constructed with Liquid inlet And outlet valves, safety valve, charging valve, drain valve, Purge	Nos.	1	High Pressure Liquid Receiver, horizontal straight
<u>15</u>	valve, pressure gauge and gauge glass with valves.	And the second s		through type, suitable for 150 TR capacity, with necessary valves & controls, Rinac make
<u>16</u>	MS 'C' class refrigerant pipes, pipe fittings and ammonia valves to interconnect above equipment in the system comprising of suction,	Lot.	1	15mm dia : 60 Rmt 25mm dia : 55 Rmt 32mm dia : 12 Rmt



	discharge, liquid and oll lines as per PID and based on compact plant layout.			40mm dia: 129 Rmt 50mm dia: 24 Rmt 65 mm dia: 61 Rmt 80mm dia: 6 Rmt 100mm dia: 72 Rmt 125mm dia: 18 Rmt 150mm dia: 55 Rmt
<u>17</u>	G.I 'B' class pipes, pipefitting and valves for condenser make up water, cylinder head cooling defrost and drain line piping as per PID and based on assumption that condenser shall be placed at a distance have not more than 10 m from the plant room.	Lot.	1	
18	PUF insulation for accumulators/vessel, suction line, liquid lines and wet return lines with fixing material bitumen/ CPRX compound and aluminum cladding of 26G with in battery limit.	Lot.	1	
19	Structural Material for pipe installation and plat form Piping support to be fabricated and installed at site with steel channel and steel angle distance between the supports to be Approx. 5 meters, with variance depend on the building condition	Lot.	1	
20	MCC panel will be cubical type switchboard with bus bar, Incoming ACB, indicating lamps, push buttons, switches, fuses, voltmeters, Voltmeter switch, ammeters, ammeters switch and starter for a) compressors motor,	Lot	1	
	b) condenser fan motor & pump,	1		
	c) Cooling coil fan motor,			
<u>21</u>	Power & Control cabling with cable tray for complete refrigeration plant.	Lot	1	Electrical Cables & Related Accessories, Polycab Cables/equivalent
22	manual gas purger with safety valve for purging non-condensable Gases from the system.	Nos.	1	
<u>23</u>	First charge of ammonia gas and lubricant compressor oil.	Lot.	1	First Charge of Ammonia & Oil for Commissioning & Startup Activities

24	Installation, Testing & Commissioning of the complete refrigeration plant and putting in operation. Our scope is as follows: - Erection of the equipment as per our layout with proper operation and alignment - Connecting various equipment's with pipelines, fittings, controls and instruments - Painting of Equipment & Piping	Lot.	1			
	- Pressure testing, charging of gas and commissioning of the plant.					
<u>25</u>	ALL ELECTRICAL FIXTURES INCLUDE ALL SWITCHES AND lighting AS REQUIRED -Complete Facility	Lot	1			
<u>26</u>	Dock leveller of platform with hinged lip made of profile and anti-slip steel. Pairs of super bumpers with heavy steel support. Hydraulic power pack suitable for p load of 40 tones as defined by EN 1398.	Nos.	1			
27	Stacking Arrangement				00 V-100 A	
A	Lot of MS Material for MS structure for Floor loading in each room made from MS Square Pipes, MS 'I' Beam, MS 'C' channel, MS Angle, MS Plate and other MS material	Kg (approx)	400000.00			
В	Lot of Labor Job for MS structure for Floor loading in each room made from MS Square Pipes, MS 'I' Beam, MS 'C' channel, MS Angle, MS Plate and other MS material which is fabricated at site will all consumables like Electric Rod and Gas with labor job for painting. All MS material, Redoxide and Color which is required will be supplied by Vendor	Kg (approx)	400000.00			
С	Wooden batten required for Wooden Flooring with accessories like strip and nails including installation.	Nos (Approx)	180000.00			
D	Wooden Planks required for staircase inside the cold room with fixing material	Nos	125	Liter Addu		
E	COLOR AND PRIMER MATERIAL FOR STEEL STRUCTURE	LOT	1	· · · · · · · · · · · · · · · · · · ·		
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PUF Panel & Doors					
				- Andrews	
	000		.		
Supply of PUF insulated Composite wall and ceiling panels.	The state of the s	= 1,1,1,2,2,1,1,1,2,1,1,1,1,1,1,1,1,1,1,1			
100 mm Thick PUF Panel for wall and ceiling in Cold Store	Sq.m	5106			
Hinged Door of Size 1200 mm x 2100 mm x 80 mm thick	Nos.	5			
Floor Insulation with PUF Sheets in single layer. PUF Density will be 40 ± 2 kg/cum with vapour barrier i.e., tarfelt, bitumen and Polythene Sheets		officeron (1905a 1714 -			
100 mm thick	Sq.m	1660			
Panel Fixing Accessories comprising:				- N	
Sealent, pop rivets and flashings, PUF Chemicals,	Sq.m	5106			
· · · · · · · · · · · · · · · · · · ·	RMT	1360			1777
	Nos.	5			
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	Sa.m.	5106			
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rieigiit	1403.				
Civil work for Machineries foundation and other misc. works	LS	1			
		-			
Total				₹	
GST@18%	<i>:</i>			₹	
		1			
	100 mm Thick PUF Panel for wall and ceiling in Cold Store Hinged Door of Size 1200 mm x 2100 mm x 80 mm thick Floor Insulation with PUF Sheets in single layer. PUF Density will be 40 ± 2 kg/cum with vapour barrier i.e., tarfelt, bitumen and Polythene Sheets 100 mm thick Panel Fixing Accessories comprising: Sealent, pop rivets and flashings, PUF Chemicals, Alumnum tee only. PVC Strip Curtains for Doors Installation Installation of Panels Installation of Floor Insulation Installation of Hinged Door Freight Civil work for Machineries foundation and other misc. works	Supply of PUF insulated Composite wall and ceiling panels. 100 mm Thick PUF Panel for wall and ceiling in Cold Store Hinged Door of Size 1200 mm x 2100 mm x 80 mm thick Floor insulation with PUF Sheets in single layer. PUF Density will be 40 ± 2 kg/cum with vapour barrier i.e., tarfelt, bitumen and Polythene Sheets 100 mm thick Panel Fixing Accessories comprising: Sealent, pop rivets and flashings, PUF Chemicals, Alumnum tee only. PVC Strip Curtains for Doors Installation Installation of Panels Installation of Floor Insulation Installation of Hinged Door Freight Nos. Civil work for Machineries foundation and other misc. works Total	Supply of PUF insulated Composite wall and ceiling panels. 100 mm Thick PUF Panel for wall and ceiling in Cold Store Hinged Door of Size 1200 mm x 2100 mm x 80 Mos. Floor Insulation with PUF Sheets in single layer. PUF Density will be 40 ± 2 kg/cum with vapour barrier i.e., tarfelt, bitumen and Polythene Sheets 100 mm thick Sq.m 1660 Panel Fixing Accessories comprising: Sealent, pop rivets and flashings, PUF Chemicals, Alumnum tee only. PVC Strip Curtains for Doors Installation Installation of Panels Installation of Floor Insulation Installation of Hinged Door Freight Nos. 1 Civil work for Machineries foundation and other misc. works Total	Supply of PUF insulated Composite wall and ceiling panels. 100 mm Thick PUF Panel for wall and ceiling in Cold Store Hinged Door of Size 1200 mm x 2100 mm x 80 mm thick Floor Insulation with PUF Sheets in single layer. PUF Density will be 40 ± 2 kg/cum with vapour barrier i.e., tarfelt, bitumen and Polythene Sheets 100 mm thick Sq.m 1660 Panel Fixing Accessories comprising: Sealent, pop rivets and flashings, PUF Chemicals, Alumnum tee only. PVC Strip Curtains for Doors Installation Installation of Panels Installation of Floor Insulation Installation of Hinged Door Nos. 5 Freight Civil work for Machineries foundation and other misc. works Total	Supply of PUF insulated Composite wall and ceiling panels. 100 mm Thick PUF Panel for wall and ceiling in Cold Store Hinged Door of Size 1200 mm x 2100 mm x 80 mm thick Floor Insulation with PUF Sheets in single layer. PUF Density will be 40 ± 2 kg/cum with vapour barrier i.e., tarfelt, bitumen and Polythene Sheets 100 mm thick Sq.m 1660 Panel Fixing Accessories comprising: Sealent, pop rivets and flashings, PUF Chemicals, Alumnum tee only. RMT 1360 PVC Strip Curtains for Doors Installation Installation of Panels Installation of Floor Insulation Installation of Hinged Door Freight Nos. 1 Civil work for Machineries foundation and other misc. works Total

Technical Specification PUF Panel

PUF insulated (PUR) panels to be cladded on both sides with 0.5 mm thick (TCT) light profiled prepainted GI sheet in off white colour (RAL 9002); 120 gsm; RMP. The PUF density to be $40 \pm 2 \text{ Kg}$ /m³. The panels to be provided with Cam lock and tongue & Groove jointing system for leak proof joints

The thermal conductivity of PUF to be $(0.023\pm5\%)\,\text{w/m}^{\circ}\text{k}$. For PUF insulated panel thickness.

Panel Fixing Accessories

Panel fixing accessories comprise of plain pre – painted GI Sheet corner flashing, Sealant, Pop Rivets and aluminum / PCGI Sheet angles. Aluminum Tee with suspensionssystem for ceiling panel support

Floor Insulation with PUF Sheets

The Floor Insulation to be with PUF Sheets conforming to IS: 4671-1984, in double/single layer.

The density of PUF Sheet to be 40 ± 2 Kg/m³. The supply includes sufficient quantity of vapor barrier such as tar-felt, polythene sheet and blown bitumen of 85/25 Grade. The floor insulation to be laid as per IS: 661-1974

Hinged door

Hinged Doors comprising Door Shutter cladded on both sides with 0.5mm thick (tct) plain pre - painted GI sheet in Off- white colour. Door to be fitted with standard door fittings comprising Hinges, Locking Arrangement with Emergency Push Rod, and Gasket suitable.

Motorized / Manual Horizontal Sliding Doors

Motorized / Manually Operated Horizontal Sliding Doors to be complete with sliding rail, door shutter cladded on all sides with 0.6 mm thick Pre-painted GI Sheet, PVC reinforced doorframe and be fitted with EPDM gasket suitable sliding arrangement.

PVC STRIP CURTAINS

PVC strip curtains required to maintain Cold Storage Temp. & Hygienic Environment by Restricting Insect, Dust & Hot Air. Creates Dust Free & Clean Environment Inside cold rooms, process area etc.

Pressure relief Valve

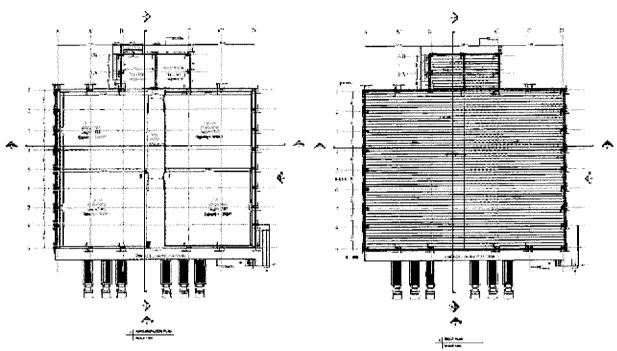
The walls and ceilings of cold rooms are constantly subjected to strains variations came by pressure variations, either from inside and from outside. The FERMOD valves make it possible to balance internal and external pressure, through venting.

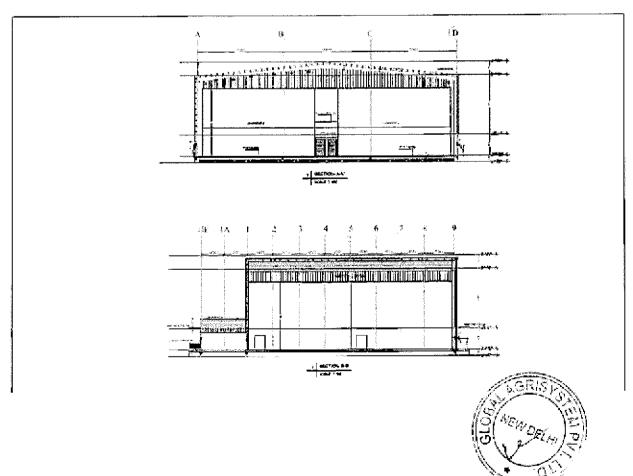
PRICE SCHEDULE: Include (Design, Supply, Installation, commissioning, Trail run)

INCLUSIONS

- Road crossing bridge and primary support (interconnection of rafter for piping and hanging for air cooling unit) for plant room, cold room and process area.
- All masonry work such as foundations for equipment, cutting and making good of holes in the walls, structural supports, plastering and flooring work etc.
- Make up water connection and drain piping Inside the Frozen/Chiller Store
- Unloading, shifting of equipment at site and transportation.

<u>Layouts</u> Potato Cold store





Note: LOT Details- This is the estimated quantity and the bidders are requested to visit the site and check the drawings before submission.

which history

(5000 MT Onion Cold Store)

Design, Supply, Installation, Testing, Commissioning of Plant & Machineries including

Puff Panel works and Mezzanine floor for Stacking Arrangements for Onion Cold

Storage-5000 MT.

BASIS OF DESIGN

1. Cold Store 1 - 4

Product

Onion

Storage Capacity

1250 MT

Daily Loading

62.5 Ton/Day/Chamber

No. of Rooms

04

Room Dimension

20 x 18 x 12 m H

Product Inlet Temp.

25°C 0°C

Room Temperature Relative Humidity

65 - **7**0%

Cooling Load

23.7 TR Each

SECTION A

TECHNICAL SPECIFICATIONS/BOQ FOR REFRIGERATION SYSTEM

Design, Supply, Installation, Testing, Commissioning of Plant & Machineries including Puff Panel works and Mezzanine floor for Stacking Arrangements for Onion Cold Storage-5000 MT.

S. No.	Description		Unit	Qty.	Unit Rate	Amount	Remarks
1	reciprocating a complete with sight glass, Suc Driver accessor pulley, V-belts wrenches & for cum control pa	gle stage multi cylinder immonia compressor, Fly-wheel, Safety valve, Oil stion and Discharge valves, ries comprising of motor and belt guard, tools, undation bolts & gauge anel and capacity control ammonia head & oil d mounting.	Nos.	2.00			COMPAK SRC 65 N 15, Single Stage Reciprocating Compressor Package for Onion Rooms, capacity 65TR @-15 deg C SST / 38 deg C SDT, complete with 110 kW 4-pole belt- driven IE2 motor, oil
	Intermediate Temp. Condensing	: (-) 15°C : 38°C					separator,Kirloskar KCX6/equivalent, [1W+1S]
	Temp. Capacity Power	: 62.9 TR : 97.53 BHP			***************************************		
	Consumed Rpm	: 1200		e e			77
2	cyclone type oi	il separator flanged th companion flanges and	Nos.	2.00			
3	IP 55, Class F In IMB3 mount, T motor suitable	make 120 HP, 4-pole, IE2, isulation, Ambient 50°C, EFC Sq. Cage induction for electric supply of 3ph x C supply with slide rails for	Nos.	2.00			
4		ke star delta starter for the	Nos.	2.00			
<u>5</u>	high speed sing reciprocating a complete with sight glass, Such Driver accessor	npressor for Cold Store gle stage multi cylinder mmonia compressor, Fly-wheel, Safety valve, Oil tion and Discharge valves, ies comprising of motor and belt guard, tools,	Nos.	1.00		NEW DELLA PL	COMPAK SRC 42 N 15, Single Stage Reciprocating Compressor Package for Onion rooms, capacity 42TR @ -15 deg C SST / 38 deg C

	cum control par	indation bolts & gauge nel and capacity control mmonia head & oil I mounting.			SDT, complete with 75 kW 4-pole belt- driven IE2 motor, oil separators,Kirloskar KCX3/equivalent, [1 working]
	Intermediate	: (-) 15°C	s.		
	Condensing Temp.	: 38°C			
	Capacity	: 41.95 TR			
	Power Consumed	: 66.37 BHP			
<u>6</u>	connections wit	: 1200 bil separator flanged th companion flanges and	Nos.	1.00	
<u>7</u>	55, Class F Insul mount, TEFC Sq suitable for elec	nake 75 HP, 4-pole, IE2, IP ation, Ambient 50°C, IMB3 . Cage induction motor ctric supply of 3ph x 415V sly with slide rails for	Nos.	1.00	A MANAGE III ANTICLI II
<u>8</u>		e star delta starter for the	Nos.	1.00	
9	complete with i condensing coil tank, fan section	monia condenser not dip galvanized , GP casing &water sum n with fans, motor, water circulation pump s	Nos.	1,00	Evaporative type condenser of capacity 270 TR
		Capacity: 229 TR			
	Wet Blub Temp	.: 27.8 °C			
<u>10</u>	Long constructe outlet valves, sa	ver of size 24" Dia. x 20' od with Liquid inlet and ofety valve, charging valve, ge valve, pressure gauge with valves	Nos.	1.00	High Pressure Liquid Receiver, horizontal straight through type, suitable for 108 TR capacity, with necessary valves & controls
<u>1</u> 1	LP Receiver For	Cold Store	Nos.	1.00	Low Pressure Liquid

12	ammonia low pressure receiver 42"dia x 12' Long constructed with liquid inlet & outlet valves, safety valve, gauge glass with valves, pressure gauge with valve saddle supports, and pump out connection with valve. Also incorporating all the nozzles and valves for easy connection with ACU's and suction - discharged lines. Hermetically sealed liquid ammonia pump for ammonia recirculation with motor and accessories comprising of suction strainer, suction and discharge valves, check valve. Set of Danfoss /Manik make controls for liquid re-circulation system comprising of: Electronic Float switch: 03 Nos.	Nos.	1.00			Receiver Package @ - 15 deg C, with vessel suitable for 108 TR, Rinac make, with Ammonia Pumps [1 working + 1 standby]
	Differential Pressure Regulating Valve : 01 No.					
	Liquid line solenoid valve :01 No.					
	Frost-free gauge glass : 01 No.		**			
14	wall mounted / ceiling suspended frigid coil air Cooling unit complete with SS Tubes & AL finned cooling coil. Total GI enclosure, drain pan, axial flow fan with motor, water defrost arrangement etc. Cold Store 1 – 4	Nos.	12.00			Ammonia Pumped type Evaporator for Cold rooms with Gl Casing, SS Tubes & Al Fins – 8.7 TR + Recirculatory Fans
	Capacity: 8.77 TR @7°C					ì
	Colls will have additional 2 rows for hot gas arrangement for producing low RH.					
	Set of Danfoss /Manik make Controls for Coil:	Set	4.00			
<u>15</u>	Liquid line solenoid valve					
Sec.	Digital Temp. Indicator cum controller	es establishment of the second				
				<u> </u>	(SY	
					NEW D	

16	MS 'C' class refrigerant pipes, pipe fittings and ammonia valves to interconnect above equipment in the system comprising of suction, discharge, liquid and oil lines as per PID and based on compact plant layout.	Lot.	1.00	15mm dia: 36 Rmt 20mm dia: 55 Rmt 32mm dia: 12 Rmt 40mm dia: 175 Rmt 50mm dia: 63 Rmt 65 mm dia: 6 Rmt 80mm dia: 99 Rmt 100mm dia: 102 Rmt 125mm dia: 90Rm
<u>17</u>	G.I 'B' class pipes, pipefitting and valves for condenser make up water, cylinder head cooling defrost and drain line piping as per PID and based on assumption that condenser shall be placed at a distance have not more than 10 m from the plant room.	Lot.	1.00	
<u>18</u>	PUF insulation for accumulators/vessel, suction line, liquid lines and wet return lines with fixing material bitumen/ CPRX compound and aluminum cladding of 26G with in battery limit.	Lot.	1.00	
19	Structural Material for pipe installation and plat form Piping support to be fabricated and installed at site with steel channel and steel angle distance between the supports to be Approx. 5 meters, with variance depend on the building condition.	Lot.	1.00	
<u>20</u>	MCC panel will be cubical type switchboard with bus bar, Incoming ACB, indicating lamps, push buttons, switches, fuses, voltmeters, Voltmeter switch, ammeters, ammeters switch and starter for	Lot	1.00	Electrical Control Panel and Distribution Panels,
	a) compressors motor,	e vages a various	e reference : i i i i i i i i i i i i i i i i i i	
	b) condenser fan motor & pump,			
	c) Cooling coil fan motor,	NA ASSESSA		
<u>21</u>	Power & Control cabling with cable tray for complete refrigeration plant	Lot	1.00	Electrical Cables & Related Accessories, Polycab Cables/equivalent
22	Manual gas purger with safety valve for purging non- condensable Gases from the system	Nos.	1.00	
		A	1	9

<u>23</u>	First charge of ammonia gas and lubricant compressor oil.	Lot.	1.00	
<u>24</u>	Installation, Testing & Commissioning of the complete refrigeration plant and putting in operation. Our scope is as follows: - Erection of the equipment as per our layout with proper operation and alignment - Connecting various equipment's with pipelines, fittings, controls and instruments	Lot.	1.00	
	- Painting of Equipment & Piping			
	- Pressure testing, charging of gas and commissioning of the plant.	i '		
25	ALL ELECTRICAL FIXTURES INCLUDE ALL SWITCHES AS REQUIRED -Complete Facility	Lot	1.00	
26	Dock leveller of platform with hinged lip made of profile and anti-slip steel. Pairs of super bumpers with heavy steel support. Hydraulic power pack suitable for load of 40 tons as defined by EN 1398.	Nos.	1.00	
<u>27</u>	Ammonia Hot Gas Defrost Valve Assembly	Lot	1.00	It's required for Low RH Rooms
28	Stacking Arrangement			
A	Lot of MS Material for MS structure for Floor loading in each room made from MS Square Pipes, MS 'I' Beam, MS 'C' channel, MS Angle, MS Plate and other MS material	Kg (Approx)	400000.00	
3	Lot of Labor Job for MS structure for Floor loading in each room made from MS Square Pipes, MS '1' Beam, MS 'C' channel, MS Angle, MS Plate and other MS material which is fabricated at site will all consumables like Electric Rod and Gas with labor job for painting. All MS material, Redoxide and Color which is required will be supplied by Vendor (G+3-1650 sqm each floor).	kg (Approx)	400000.00	
C	Wooden batten required for Wooden Flooring with accessories like strip and nails including installation.	Nos (Approx)	180000.00	

D	Wooden Planks required for staircase inside the cold room with fixing material	Nos.	125.00	:		
<u> </u>	COLOR AND PRIMER MATERIAL FOR STEEL STRUCTURE	LOT	1.00		i i i i i i i i i i i i i i i i i i i	
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	334333333			And the second second second		
		****		100 t 100 100 100 100 100 100 100 100 10		SAVIIIVO.
				-WARMON -		intelligent annihilativi
9	PUF Panel & Doors					
<u> </u>	A A SELLA CIA CIA CIA CIA CIA CIA CIA CIA CIA CI			- junio Marina - M		A SE AND LANGE
1	Supply of Items:			· :		1.00
 L	Supply of PUF insulated Composite wall					
	and ceiling panels.			·		
l. 1	100 mm Thick PUF Panel for wall and	Sq.m	5106	*		
	ceiling in Cold Store					
<u> </u>	Hinged Door of Size 1200 mm x 2100 mm	Nos.	5			
•	x 80	14031	"			
	mm thick					
}	Floor Insulation with PUF Sheets in single					
	layer.					
	PUF Density will be 40 ± 2 kg/cum with	1				diam' on the control of the control
	vapour barrier i.e., tarfelt, bitumen and Polythene Sheets					
3.1	100 mm thick	Sq.m	1660			- 500
	Panel Fixing Accessories comprising:					
.1	Sealent, pop rivets and flashings, PUF	Sq.m	5106			
_	Chemicals,		a -			4 special section of the section of
	Alumnum tee only.	RMT	160			
.2	PVC Strip Curtains for Doors	Nos.	5			
	Installation		777 9000			
.1	Installation of Panels	Sq.m.	5106			, , , , , , , , , , , , , , , , , , ,
.2	Installation of Floor Insulation	Sq.m.	1660			
.3	Installation of Hinged Door	Nos.	5			- Andrews - Andr
O	Freight	Nos.	1			
			eccom-			
1	Civil work for Machineries Foundation	LS				
	and Other misc. works					
	and the second s	-		* 30/ 3/4	₹	A see states consider the second section of the sect
	Total]_`	v · more view
	GST@18%	9			₹	
		MACA AND AND AND AND AND AND AND AND AND AN			_	
	Grand Total				₹	A COLON
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Technical Specification

PUF Panel

PUF insulated (PUR) panels to be cladded on both sides with 0.5 mm thick (TCT) light profiled pre painted GI sheet in off white colour (RAL 9002); 120 gsm; RMP. The PUF density to be 40 \pm 2 Kg /m³. The panels to be provided with Cam lock and tongue & Groove jointing system for leak proof joints The thermal conductivity of PUF to be (0.023 \pm 5%) w/m°k. For PUF Insulated panel thickness.

Panel Fixing Accessories

Panel fixing accessories comprise of plain pre – painted GI Sheet corner flashing, Sealant, Pop Rivets and aluminum / PCGI Sheet angles. Aluminum Tee with suspensionssystem for ceiling panel support

Floor Insulation with PUF Sheets

The Floor Insulation to be with PUF Sheets conforming to IS: 4671-1984, in double/single layer. The density of PUF Sheet to be 40 ± 2 Kg/m³. The supply includes sufficient quantity of vapor barrier such as tar-felt, polythene sheet and blown bitumen of 85/25 Grade. The floor insulation to be laid as per IS: 661-1974

Hinged door

Hinged Doors comprising Door Shutter cladded on both sides with 0.5mm thick (tct) plain pre-painted GI sheet in Off- white colour. Door to be fitted with standard door fittings comprising Hinges, Locking Arrangement with Emergency Push Rod, and Gasket suitable.

Motorized / Manual Horizontal Sliding Doors

Motorized / Manually Operated Horizontal Sliding Doors to be complete with sliding rail, door shutter cladded on all sides with 0.6 mm thick Pre-painted GI Sheet, PVC reinforced doorframe and be fitted with EPDM gasket suitable sliding arrangement.

PVC STRIP CURTAINS

PVC strip curtains required to maintain Cold Storage Temp. & Hygienic Environment by Restricting Insect, Dust & Hot Air. Creates Dust Free & Clean Environment Inside cold rooms, process area etc.

Pressure relief Valve

The walls and ceilings of cold rooms are constantly subjected to strains variations came by pressure variations, either from inside and from outside. The FERMOD valves make it possible to balance internal and external pressure, through venting.

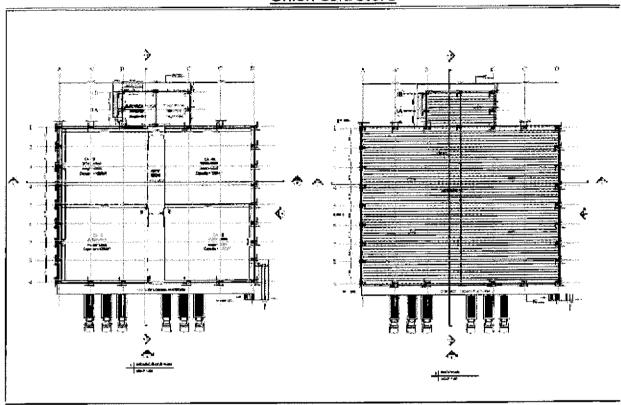
INCLUSIONS

- Road crossing bridge and primary support (interconnection of rafter for piping and hanging for air cooling unit) for plant room, cold room and process area.
- All masonry work such as foundations for equipment, cutting and making good of

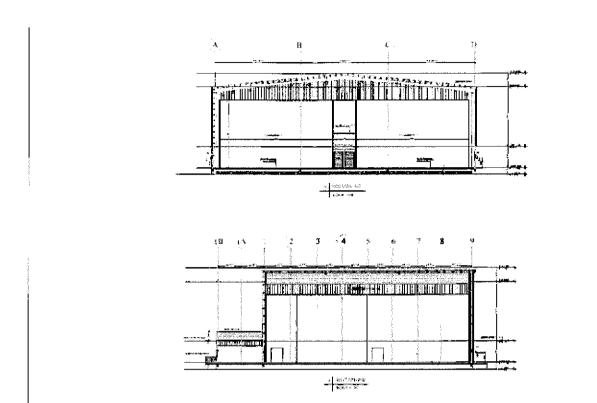
holes in the walls, structural supports, plastering and flooring work etc.

- Make up water connection and drain piping Inside the Frozen/Chiller Store
- Unloading, shifting of equipment at site and transportation.

Onion Cold Store







Note: LOT Details- This is the estimated quantity and the bidders are requested to visit the site and check the drawings before submission.

(Banana Ripening 20 MT x 04 Nos.)

Design, Supply, Installation, Testing, Commissioning of Plant & Machineries including Puff Panel works for Banana Ripening Chamber- 80 MT



BASIS OF DESIGN

1. Banana Ripening

Product

Banana

Storage Capacity

20

MT No. of Rooms

4

Room Dimension

5,5 X 7.2 X 3.5 m

HProduct Inlet Temp. :

25°C

Room Temperature

15°C -

18°CCooling Load

7 TR Each

Design, Supply, Installation, Testing, Commissioning of Plant & Machineries including Puff Panel works for Banana Ripening Chamber- 80 MT

5.	Di	escription	Unit	Qty	Unit	Amount	Remarks
No.					Rate		
1	high speed	i single stage multi	Nos.	2.00			COMPAK SRC 40 P 6,
	cylinder reciprocating ammonia						Single Stage
		, complete with Fly-					Reciprocating
	wheel, Saf	ety valve, Oil sight				1	Compressor Package
		ion and Discharge					for Ripening chamber,
		river accessories					capacity 40TR @6 deg
	comprising of motor pulley, V-				:		C \$ST / 40 deg C \$DT,
	belts and	belt guard, tools,					complete with 37 kW
	wrenches &	foundation bolts &					4-pole belt-driven IE2
	gauge cum	control panel and					motor, oll
	capacity co	ntrol arrangement,					separator,Kirloskar
	ammonia head & oil cooling and						PC2/equivalent,
	skid	mounting.					[1W+1S]
	Suction	: 10°C					
	Temp.						
	Condensi	: 40°℃					
	ng Temp.						
	Capacity	: 39 TR				and the same of th	
	Power	: 29.4 BHP					
	Consume						
	d						
	Rpm	: 750					
2	cyclone t	ype oil separator	Nos.	2.00			
	flanged o	onnections with		i I			
	companion f	langes and oil drain					
		valve.			i		
3		emens make 40 HP,	Nos.	2.00			
i	4-pole, II	E2, IP 55, Class F					
	Insulation,	IMB3 mount, TEFC				At time at the	
	Sq. Cage	induction motor				4	
1	suitable for	electric supply of					
ļ	3ph x 415V	x 50HZ, AC supply					
	with slide ra	ails for compressor					
4	Reputed ma	ke star delta starter	Nos.	2.00			
	for the	above motors.					

5	evaporative ammonia	Nos.	1.00	Evaporative type condenser of capacity
	condenser complete with hot			condenser of capacity 79 TR
	dip galvanized condensing coil,			73 16
	galvanized water sum tank,		}	
	galvanized casing, fan section			Í
	with fans, motor, eliminators and water circulation pump			
	with PVC fittings			
	Heat Rejection Capacity: 79 TR ,CondensingTemp:38°C			
	Wet Blub Temp. 27.8 °C			
6	Ammonia receiver size 20" dia x	Nos.	1.00	High Pressure Liquid
	12' long Liquid inlet And outlet			Receiver, horizontal
	valves, safety valve, charging			straight through type, suitable for 41 TR
	valve, drain valve, Purge valve,			capacity, with
	pressure gauge and gauge glass			necessary valves &
	with valves.			controls, Rinac make
7	wall mounted / ceiling	Set	4.00	Ammonia Flooded type
,	suspended frigid coil air Cooling	JEL	4.00	Evaporator for Cold
	unit complete with AL Tubes &			rooms with GI Casing,
	AL finned cooling coil. Total GI			SS Tubes & Al Fins &
	enclosure and drain pan axial			Accumulator - 7 TR
	flow fan with motor with water		:	
	defrost arrangement etc.		<u> </u>	9 10 10 10
	Banana Ripening 1 - 4			
8	Controls for Coil:	Nos.	2.00	
	Liquid line solenoid valve : 01			
	No.			1
	Digital Temp. Indicator : 01 No.			3
	Electronic Float Switch :			
	01 No.			1
	Expansion Valve :			
	01 No			
9	Ethylene Generator portable	Nos.	2.00	Supply and installation
	type with power cord			of Ripening rooms wit
				Humidifier,CO2
	1			Extraction system,
				controller,Sensor,Ethy
				ene generator & Light fittings
10	MS 'C' class pipes, pipe fittings	Lot.	1.00	
	and ammonia valves to			15mm dia : 16 Rmt
	interconnect above equipment			20mm dia : 35 Rmt
	based on compact plant layout.			25mm dia : 24 Rmt
	Also pipe, pipefitting and			32mm dia : 16 Rmt
	ammonia valves to inter			40mm dia : 56 Rmt 50mm dia : 86 Rmt
	connect compressors			Summ dia : 86 KmE
11	C L'D' class since sinaffating	La+	1.00	
11	G.I 'B' class pipes, pipefitting and valves for condenser water	Lot.	1.00	
ĺ	circulation with defrost drain			**
	pipe, oil-cooler piping and			
	based on assumption that			LESSIEL .
	condenser shall be placed at a			
	distance have not more than			11-KM20- 14/
	7m from the plant room.			1141 12 12 12 12 12 12 12 12 12 12 12 12 12
			<u> </u>	
				10.00 1 %

12	PUF insulation with 26 G aluminum cladding with fixing material bitumen/ CPRX compound for surge drum & suction line with in battery limit.	Lot.	1.00			
13	Structural Material for pipe installation and plat form Piping support to be fabricated and installed at site with steel channel and steel angle distance between the supports to be Approx. 5 meters, with variance depend on the building condition.	Lot.	1.00			
14	MCC panel will be cubical type switchboard with bus bar, Incoming ACB, indicating lamps, push buttons, switches, fuses, voltmeters, Voltmeter switch, ammeters, ammeters switch, and starter for fan motor, condenser pump, ammonia pumps, and feeder for compressors motor starter.	Lot.	1.00	Commission of the Commission o		
15	Power & Control cabling with cable tray for complete refrigeration plant and all electrical fixtures including lighting and power switch as required	Lot.	1.00	Office Co.		
16	manual gas purger with safety valve for purging non- condensable Gases from the system	Nos.	1.00		The state of the s	
17	First charge of ammonia gas and lubricant compressor oil	Lot.	1.00			
18	Installation, Testing & Commissioning of the complete refrigeration plant and putting in operation. Our scope is as follows: Erection of the equipment as per our layout with proper operation and alignment Connecting various equipment's with pipelines, fittings, controls and instruments Pressure testing, charging of gas and commissioning of the plant.	Job.	1.00		The Security Process of the Control	
19	PUF Panel & Doors					N 200
A	A STATE OF THE STA	- Allendar			to a transmission of the t	Manager 1 annual
1	Supply of PUF insulated Composite wall and ceiling panels.				<u>.</u>	
1.1	80 mm Thick PUF Panel for wall and ceiling in	\$q.m	490	ger gar 4 , p		V

No. Ou

	Cold Store					
2	Manual Sliding Door of Size 1200 mm x 2100 mm x 80 mm thick	Nos.	4			
3	Floor Insulation with PUF Sheets in single layer. PUF Density will be 40 ± 2 kg/cum with vapour barrier i.e., tarfelt, bitumen and Polythene Sheets					
3.1	60 mm thick	Sq.m	172			
4	Panel Fixing Accessories comprising:	1.5 XII. 2000		:		
4.1	Sealent, pop rivets and flashings, PUF Chemicals, Alumnum tee only.	Sq.m	490			
4.2	PVC Strip Curtains for Doors	Nos.	4			<u> </u>
5	Installation					de la Maria
5.1	Installation of Panels	Sq.m.	490	7047 705		
5,2	Installation of Floor Insulation	Sq.m.	172			
5,3	Installation of Hinged Door	Nos.	4		W 200 000	
20	Freight	Nos.	1	224300000000000000000000000000000000000		
21	Civil work for Machineries foundation and other misc. works	LS	1			
	Total					
	GST@18%		!		₹ -	
	Grand Total	STATE OF THE STATE			₹ .	
						GRISYS

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Technical Specification

PUF Panel

PUF insulated (PUR) panels to be cladded on both sides with 0.5 mm thick (TCT) light profiled pre painted GI sheet in off white colour (RAL 9002); 120 gsm; RMP. The PUF density to be 40 ± 2 Kg/m³. The panels to be provided with Cam lock and tongue & Groove jointing system for leak proof joints The thermal conductivity of PUF to be $(0.023 \pm 5\%)$ w/m°k. For PUF Insulated panel thickness.

Panel Fixing Accessories

Panel fixing accessories comprise of plain pre – painted GI Sheet corner flashing, Sealant, Pop Rivets and aluminum / PCGI Sheet angles. Aluminum Tee with suspensionssystem for ceiling panel support

Floor Insulation with PUF Sheets

The Floor Insulation to be with PUF Sheets conforming to IS: 4671-1984, in double/single layer. The density of PUF Sheet to be 40 ± 2 Kg /m³. The supply includes sufficient quantity of vapor barrier such as tar-felt, polythene sheet and blown bitumen of 85/25 Grade. The floor insulation to be laid as per IS: 661-1974

Hinged door

Hinged Doors comprising Door Shutter cladded on both sides with 0.5mm thick (tct) plain prepainted GI sheet in Off- white colour. Door to be fitted with standard door fittings comprising Hinges, Locking Arrangement with Emergency Push Rod, and Gasket suitable

Motorized / Manual Horkontal Sliding Doors

Motorized / Manually Operated Horizontal Sliding Doors to be complete with sliding rail, door shutter cladded on all sides with 0.6 mm thick Pre-painted GI Sheet, PVC reinforced doorframe and be fitted with EPDM gasket suitable sliding arrangement

PVC STRIP CURTAINS

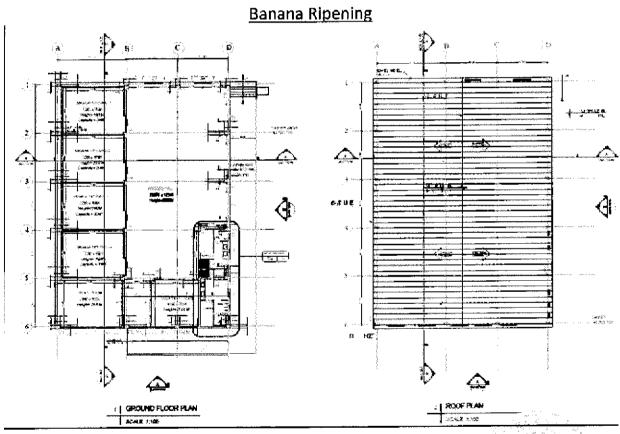
PVC strip curtains required to maintains Cold Storage Temp. & Hygienic Environment by Restricting Insect, Dust & Hot Air. Creates Dust Free & Clean Environment Inside cold rooms, process area etc.

Pressure relief Valve

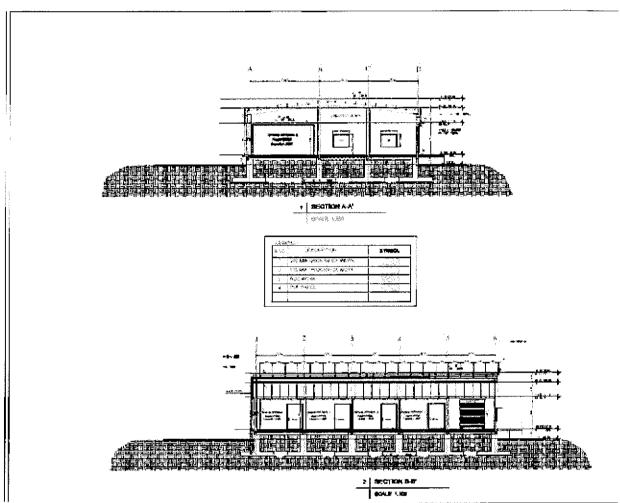
The walls and ceilings of a cold rooms are constantly subjected to strains variations came by pressure variations, either from inside and from outside. The FERMOD valves makes it possible to balance internal and external pressure, through venting

INCLUSIONS

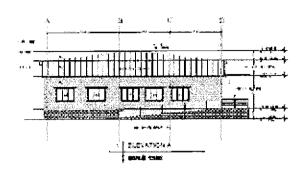
- Road crossing bridge and primary support (interconnection of rafter for piping and hanging for air cooling unit) for plant room, cold room and process area.
- All masonry work such as foundations for equipment, cutting and making good of holes in the walls, structural supports, plastering and flooring work etc.
- Make up water connection and drain piping Inside the Frozen/Chiller Store
- Unloading, shifting of equipment at site and transportation



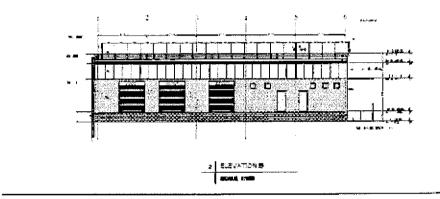








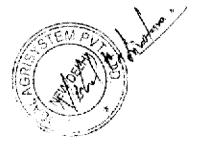
Arts.	Company of the Company	54 MGC
	245.08×466.5×	2.53
	2845. 0** V	anu



Note: LOT Details- This is the estimated quantity and the bidders are requested to visit the site and check the drawings before submission.

(Litchi Packhouse)

Design, Supply, Installation, Testing, Commissioning of Plant & Machineries including Puff Panel works for Litchi Packhouse- 6 MT/Batch



BASIS OF DESIGN

1. Litchi Pre Cooler 1 - 2

Product : Litchi Storage Capacity : 6 MT

Daily Loading : 6 Ton/Day/Chamber

No. of Rooms : 02

Room Dimension : 5 x 5 x 3.5 m H

Product Inlet Temp. : 25°C Room Temperature : 2°C

Cooling Load : 10.5 TR Each

2. Litchi Cold Store 1

Product : Litch: Storage Capacity : 50 MT

Daily Loading : 12 Ton/Day/Chamber

No. of Rooms : 01

Room Dimension : $15 \times 12 \times 3.5 \text{ m H}$

Product Inlet Temp. : 25°C Room Temperature : 2°C

Cooling Load : 7.7 TR Each

Design, Supply, Installation, Testing, Commissioning of Plant & Machineries including Puff Panel works for

Litchi Packhouse- 6 MT/Batch

	Litchi Packho	ouse- 6 I	MI/Bate	ch ch		A
S. No	Description	Unit	Qty.	Unit Rate	Amount	Remarks
1	high speed single stage multi cylinder reciprocating ammonia compressor, complete with Fly-wheel, Safety valve, Oil sight glass, Suction and Discharge valves, Driver accessories comprising of motor pulley, V-belts and belt guard, tools, wrenches & foundation bolts & gauge cum control panel and capacity control arrangement, ammonia head & oil cooling and skid mounting. Suction Temp. : (-) 5°C Condensing : 38°C Temp. Capacity : 35.03 TR	Nos.	2.00		- Luis V	COMPAK SRC 36 N 5, Single Stage Reciprocating Compressor Package for Litchi Packhouse, capacity 36TR @- 5 deg C SST / 38 deg C SDT, complete with 37 kW 4-pole belt- driven IE2 motor; oil separator, Kirloska r KC2/equivalent,

	Power			1	[1W+15]
	Consumed : 40.99 BHP				
	Rpm : 1200				
2	Cyclone type oil separator flanged connections with companion flanges and oil drain valve.	Nos.	2.00		
3	ABB/ C.G/ Siemens make 50 HP, 4-pole, IE2, IP 55, Class F Insulation, IMB3 mount, TEFC Sq. Cage induction motor suitable for electric supply of 3ph x 415V x 50HZ, AC supply with slide rails for compressor	Nos.	2.00		
4	Reputed make star delta starter for the above motors	Nos.	2.00		
5	India make evaporative ammonia condenser complete with hot dip galvanized condensing coil, galvanized water sum tank, galvanized casing, fan section with fans, motor, eliminators and water circulation pump with PVC fittings Heat Rejection Capacity: 79 TR Condensing Temp: 38 °C	Nos.	1.00		Evaporative type condenser of capacity 79 TR
	Wet Blub Temp. : 27.8 °C				
6	Ammonia receiver size 20" dia x 12' long Liquid inlet And outlet valves, safety valve, charging valve, drain valve, Purge valve, pressure gauge and gauge glass with valves.	Nos.	1.00		
	make wall mounted / ceiling suspended frigid coil air Cooling unit complete with AL Tubes & AL finned cooling coil. Total GI enclosure and drain pan axial flow fan with motor with water defrost arrangement etc.				
	Pre Cooler 1 - 2		2.00		Ammonia Floode type Evaporator for Cold rooms
7	Capacity: 10.7 TR .	Nos.			with GI Casing, SS Tubes & Al Fins – 10.7 TR
	Pre Cooler 1 - 2		2.00		Ammonia Floode type Evaporator for Cold rooms
	Capacity: 6.2 TR				with GI Casing, S! Tubes & AI Fins - 6,2 TR
		15a c			1976)

A CONTRACTOR

8	G.I 'B' class pipes, pipefitting and valves for condenser water circulation with defrost drain pipe, oil-cooler piping and based on assumption that condenser shall be placed at a distance have not more than 7m from the plant room.	Lot.	1.00	15mm dia: 8 Rmt 20mm dia: 40 Rmt 25mm dia: 24 Rmt 32mm dia: 58 Rmt 40mm dia: 32 Rmt 50mm dia: 50 Rmt 65 mm dia: 24 Rmt 80mm dia: 50 Rmt
9	PUF insulation with 26 G aluminum cladding with fixing material bitumen/ CPRX compound for surge drum & suction line with in battery limit	Lot.	1.00	
10	Structural Material for pipe installation and plat form Piping support to be fabricated and installed at site with steel channel and steel angle distance between the supports to be Approx. 5 meters, with variance depend on the building condition.	Lot.	1.00	
-11	MCC panel will be cubical type switchboard with bus bar, Incoming ACB, indicating lamps, push buttons, switches, fuses, voltmeters, Voltmeter switch, ammeters, ammeters switch, and starter for fan motor, condenser pump, ammonia pumps, and feeder for compressors motor starter.	Lot.	1.00	
12	Power & Control cabling with cable tray for complete refrigeration plant	Lot.	1.00	
13	manual gas purger with safety valve for purging non- condensable Gases from the system.	01 No.	1.00	
14	First charge of ammonia gas and lubricant compressor oil.	Lot.	1.00	
15	Installation, Testing & Commissioning of the complete refrigeration plant and putting in operation. Our scope is as follows: • Erection of the equipment as per our layout with proper operation and alignment • Connecting various equipment's with pipelines, fittings, controls and instruments • Pressure testing, charging of gas and commissioning of the plant.	Job.	1.00	AGR STOR

<u></u>

		k		ı		1	
1 6	ALL ELECTRICAL FIXTURES INCLUDE ALL SWITCHES and Lighting AS REQUIRED - Complete Facility	lob.	1.00				
17	Dock leveller of platform with hinged lip made of profile and anti-slip steel. Pairs of super bumpers with heavy steel support. Hydraulic power pack suitable for load of 12,5 tones as defined by EN 1398.	Nos.	1.00		Market State of State		
			· · · · · · · · · · · · · · · · · · ·				<u> </u>
18	PUF Panel & Doors	· ·····	1 1	w. ** • • • • • • • • • • • • • • • • • •			
1	Supply of PUF insulated Composite wall and ceiling panels.						
1.1	100 mm Thick PUF Panel for wall and ceiling in Cold Store	Sq.m	670.00				
2	Manual Sliding Door of Size 1200 mm x 2100 mm x 80 mm thick	Nos.	4.00				
3	Floor Insulation with PUF Sheets in single layer. PUF Density will be 40 ± 2 kg/cum with vapour barrier i.e., tarfelt, bitumen and Polythene Sheets						
3.1	100 mm thick	Sq.m	275.00				
4	Panel Fixing Accessories comprising:	1					to the contract of the contrac
4.1	Sealent, pop rivets and flashings, PUF Chemicals, Alumnum tee only.	Sq.m	670.00		, , , , , , , , , , , , , , , , , , ,		
4.2	PVC Strip Curtains for Doors	Nos.	4.00	Parts 17/15 or			
5	Installation			W			
5.1	Installation of Panels	Sq.m.	670.00				
5.2	Installation of Floor Insulation	Sq.m.	275.00				
5.3	Installation of Hinged Door	Nos.	4.00				/// / / / / / / / / / / / / / / / / /
19	Freight	Nos.	1.00	×			
	Civil work for Machineries foundation and other		F 10 (20.0)			177 LB	
20	misc. works	L5	1.00				
	ANALO DE LA CONTRACTOR DE				₹	Control of the contro	**********
	Total				-		
	GST@18%				₹ -		
	Grand Total	and the following state of the			₹ -		THE SECTION SE



Technical Specification

P<u>UF Panel</u>

PUF insulated (PUR) panels to be cladded on both sides with 0.5 mm thick (TCT) light profiled pre painted GI sheet in off white colour (RAL 9002); 120 gsm; RMP. The PUF density to be 40 ± 2 Kg/m³. The panels to be provided with Cam lock and tongue & Groove jointing system for leak proof joints The thermal conductivity of PUF to be $(0.023 \pm 5\%)$ w/m³k. For PUF insulated panel thickness.

Panel Fixing Accessories

Panel fixing accessories comprise of plain pre – painted GI Sheet corner flashing, Sealant, Pop Rivets and aluminum / PCGI Sheet angles. Aluminum Tee with suspensionssystem for ceiling panel support

Floor Insulation with PUF Sheets

The Floor Insulation to be with PUF Sheets conforming to IS: 4671-1984, in double/single layer. The density of PUF Sheet to be 40 ± 2 Kg $/m^3$. The supply includes sufficient quantity of vapor barrier such as tar-felt, polythene sheet and blown bitumen of 85/25 Grade. The floor insulation to be laid as per IS: 661-1974

Hinged door

Hinged Doors comprising Door Shutter cladded on both sides with 0.5mm thick (tct) plain prepainted GI sheet in Off- white colour. Door to be fitted with standard door fittings comprising Hinges, Locking Arrangement with Emergency Push Rod, and Gasket suitable.

Motorized / Manual Horizontal Sliding Doors

Motorized / Manually Operated Horizontal Sliding Doors to be complete with sliding rail, door shutter cladded on all sides with 0.6 mm thick Pre-painted GI Sheet, PVC reinforced door-frame and be fitted with EPDM gasket suitable sliding arrangement

PVC STRIP CURTAINS

PVC strip curtains required to maintain Cold Storage Temp. & Hygienic Environment by Restricting Insect, Dust & Hot Air. Creates Dust Free & Clean Environment Inside cold rooms, process area etc.

Pressure relief Valve

The walls and ceilings of cold rooms are constantly subjected to strains variations came by pressure variations, either from inside and from outside. The FERMOD valves makes it possible to balance internal and external pressure, through venting.

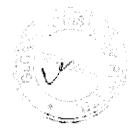


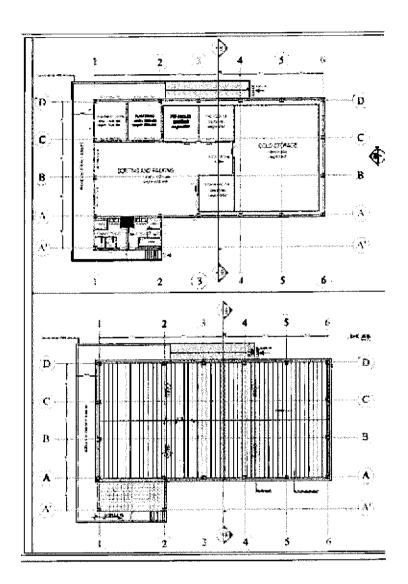
INCLUSION5

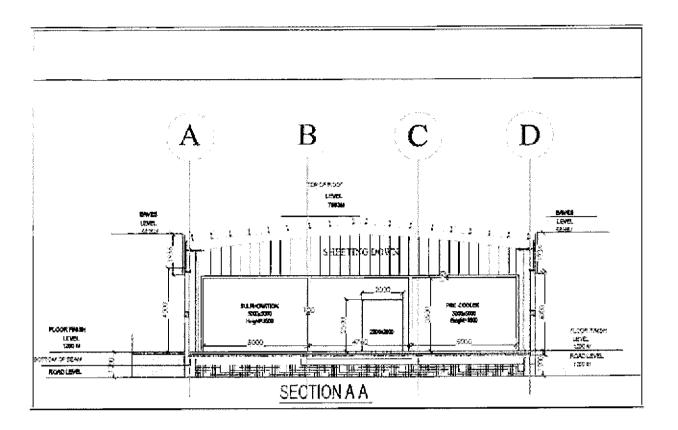
- Road crossing bridge and primary support (interconnection of rafter for piping and hanging for air cooling unit) for plant room, cold room and process area.
- All masonry work such as foundations for equipment, cutting and making good of holes in the walls, structural supports, plastering and flooring work etc.
- Make up water connection and drain piping Inside the packhouse and storage.
- Unloading, shifting of equipment at site and transportation.

A' A B C D

ELEVATION - A







Note: LOT Details- This is the estimated quantity and the bidders are requested to visit the site and check the drawings before submission.



Design Supply installation, Testing, commissioning of Plant & Machineries for IQF-2MTPH and Frozen Storage-4000 MT

(2 TPH IQF and Processing Line)

Section A

TECHNICAL SPECIFICATIONS FOR PROCESSING LINE

S.NO	EQUIPMENT DESCRIPTION	QTY.	Unit Rate A	mount
1.	FEED ELEVATOR	02 Nos.	-	
	Capacity - 2000 kg of pods/hr.(each)		200	
	Suitable for feeding peas to the depodder. The equipment cons	ists of :-		
	a) PVC flap type conveyor (imported) with height of Flap 1	100	,	
	mm, placed at a distance of 300 mm.			
	b) S.S. 304 side guides & center guides for partition.			
	c) S.S. feed hopper & discharge chute.		No.	
į.	d) Fixed speed drive with geared motor & sprockets.	į		
? } 	e) S.S. framework with S.S. supporting.	4		
2.	PEA DEPODDER	02 Nos.		
	Capacity - 2000 kg of pods/hr.			
ĺ	Suitable for depodding of peas. The equipment consists of :-			
E.	a) Wooden beaters mounted on S.S. beater drum with		£	
	adjustment arrangement for flow of product.		1	
	b) Riddle drum fabricated from S.S. 304 sq. pipes with S.S.	wire		
	mesh of size 14 mm X 14hmmX 2.5 mm thick.			
1	c) S.S. feed hopper & discharge chute.			
	d) Apron conveyor (imported) with S.S framework, M.S		·	
	driving & driven roller & arrangement for adjustment of	of g	4	
	apron conveyor.			
	e) S.S framework for mounting of beater drum & riddle dru	u m .		
	f) Conveyor for carrying skins from apron conveyor to was	ite :		
	conveyor.			
	g) Fixed speed drive with geared motor & sprockets.	l l		
3.	WASTE COLLECTION CONVEYOR	01 No.		
	Capacity - 4000 kg of waste/hr.			
	Size - 800 mm x 6500 mm length			
	Power - 1 HP			
	Suitable for collecting & carrying waste discharged from depodde	ers.	j	
	The equipment consists of :-			
	 a) PVC coated food grade endless belt (imported). 			
	b) Side guide, rollers, framework will be from S.S.304.			
	 c) Fixed speed drive with geared motor with S.S. base Plate cover. 	e & motor		

4.	BUCKET ELEVATOR	01 No.
	Capacity - 4000 kg of waste/hr.	K S
	Size - 600 mm x 3750 mm length	
	Power - 1 HP	
	Suitable for carrying the product to recovery drum. The equipment consists	s of:
	a) S.S. 304 framework with supporting	i t
	b) Perforated buckets with side guards at both sides.	The state of the s
	c) Sprockets with S.S. shaft & bearings for driving buckets.	
	d) Fixed speed drive with geared motor.	
5.	RECOVERY DRUM WITH GRAIN CONVEYOR	01 No.
	Capacity - 4000 kg Of waste/hr.	1
	Size - 1150 mm x 4700 mm length	(; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;
	Power - 9 HP	
	Suitable for separating pea grains waste. The equipment consists of:-	
	a) S.S. perforated drum of perforation size 15 mm. Dia.	i .
	 Apron conveyor with S.S. framework & rollers for separating grains from skin pods. 	i Comment
	c) S.S. framework with supporting	
	d) S.S. feed hopper & discharge chute.	
:	e) Fixed speed drive with geared motor.	
	f) 5 h.p blower with ducting for continuous cleaning of holes.	
6.	WASTE DISCHARGE CONVEYOR/ELEVATOR	01 No.
	Capacity - 4000 kg of waste/hr.	
	Size - 800 mm x 6000 mm length	1 1 1 1 1 1
	Power - 1 HP	1
1	Suitable for carrying waste from recovery drum. The equipment consists of	-
	a) PVC conveyor	
	b) S.S. 304 side guides & center guides for partition.	
	c) S.S. feed hopper & discharge chute.	
	d) Fixed speed drive with geared motor & sprockets.	
	e) S.S. framework with S.S supporting.	

7.	CROSS COLLECTION CONVEYOR	01 No.		
	Capacity - 2000 kg of waste/hr.			
	Suitable for collecting peas from depodders & carrying them to grain conveyor.			
	The equipment consists of:-			
:	a) PVC coated food grade endless belt (imported).			
	b) Side guides, rollers, framework will be from S.S.			
	 c) Fixed speed drive with geared motor with S.S. base Plate & motor cover. 			
	POD SORTER	01 No.		
	Size - 1.25 mtr x 700 mm (top) & 500 mm bottom x			
	200 mm Power - 2 HP			
	Hole size - 14			
	mm. round Suitable for			
	separating pods from grain.			
9.	GRAIN CONVEYOR	01 No.	,	
	Capacity - 2000 kg Of Kgs/hr.			
	Suitable for collecting peas from pod sorter & carrying them to elevator. The equipment consists of :-			
	a) PVC coated food grade endless belt (imported).			
	b) Side guides, rollers, framework will be from S.S.			
	 c) Fixed speed drive with geared motor with S.S. base Plate & motor cover. 			
10.	BUCKET ELEVATOR	01 No.		_
	Capacity - 2000 kg of grains /hr.			
	Suitable for carrying the product to winower. The equipment consists of :-			
	a) S.S. framework with S.S. supporting.			
	b) Perforated buckets with side guards at both sides.			
	c) Fixed speed drive with geared motor & sprockets.		\$200 miles (miles)	
11.	VIBRATORY WINGWER WITH POD STICK ELEMINATOR	01 set		
	Capacity - 2000 kg Of Kgs /hr.		ŧ	
	Suitable for removing pods, skin, floaters & warms from the product. The equipment consists of :-			
	a) S.S. slotted tray with S.S. side guides.			
	b) S.S. supporting with S.S framework.			
	c) Blower of suitable capacity.			
	d) S.S. discharge chute with perforated base.			
	e) Fixed speed drive for shaker & blower with vibratory motors.			

12.	BUCKET ELEVATOR	01 set
	Capacity - 2000 kg of grains /hr.	
	Suitable for lifting the product from winower to hydro flume	i
	hopper. The equipment consists of :-	
	a) S.S. framework with S.S. supporting.b) Perforated buckets with side guards at both sides.	
	1 1	
	c) 150 mm dia 5.5 pipeline for carrying the product to washer with pump & return line to hopper for recirculation	
	d) Fixed speed drive with geared motor & sprockets.	
13.	FLOTATION WASHER	01 set
	Capacity - 2000 Kgs /hr.	
Service of the Control of the Contro	Suitable for washing of leafy & root vegetables & removing of floaters from the product. The equipment consists of :-	
	a) S.S. balance tank with S.S. centrifugal pump for transfer of product.	
	b) S.s wire mesh conveyor for de watering of product	
14.	S.S BELT WASHER	01 No.
14.	Capacity - 2000 Kgs /hr.	01140.
	Capacity - 2000 kgs/iii.	
	Suitable for washing OF leafy & root vegetables & removing of foreign particles from the product. The equipment consists of:-	
	a) S.S. balance tank with S.S. centrifugal pump & turbine blower.	
	 b) S.S. flume suitable for washing of product & removal of stone & other solid particles. 	
	 c) Arrangement for washing of product by fresh water& removing foreign material. 	
	d) Fixed speed drive with geared motor.	
15 .	S.S. BELT TYPE STEAM BLANCHER	01 No.
	Capacity - 2000 Kgs /hr.	
į	Suitable for blanching of product. The equipment consists of: -	
	a) 5.S. outer shell with hinged top covers.	
	b) PP Perforated belt (modular) to withstand 180°c temp.	
	c) S.S. feed & discharge chute.	
	d) VFD drive with geared motor.	

e) S.S pump with duplex filter system to spread water on the product. f) PLC Controlled Pneumatically operated solenoid valve assembly with temperature controller. g) Steam Spray Nozzle Assembly Placed Under the Belt. h) PLC with touch screen to control Speed of belt & temperature. 16. BELT TYPE AFTER COOLER Capacity - 2000 Kgs /hr. Suitable for cooling of product up to 15 c provided feeded by water of temp. 7c.	
with temperature controller. g) Steam Spray Nozzle Assembly Placed Under the Belt. h) PLC with touch screen to control Speed of belt & temperature. 16. BELT TYPE AFTER COOLER Capacity - 2000 Kgs /hr. Suitable for cooling of product up to 15 c provided feeded by water of temp.	
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Capacity - 2000 Kgs /hr. Suitable for cooling of product up to 15 c provided feeded by water of temp.	1
Suitable for cooling of product up to 15 c provided feeded by water of temp.	· ·
	A STATE OF THE STA
The equipment consists of :-	1
a) Modular belt with counter flow arrangement	
b) S.S. centrifugal pump two nos. with two nos. S.S. balance tanks with filters.	
c) S.S. pipeline upto tanks.	
d) Level adjuster for water & temperature gauges at two points.	
e) SS flume of suitable length for 1st stage cooling.	
17. DEWATERING CONVEYOR 01 No).
Capacity - 2000 Kgs /hr.	
Suitable for removing water from the surface of product. The equipment consists of :-	,
a) S.S. frame with S.S. guides & supports.	
b) S.S. Hooper for collecting & drain water,	S per
c) S.S box frame for three no. fans mounted on conveyor.	:
d) Fixed speed drive with geared motor.	
18. DEWATERING SHAKER 01 No	
Capacity - 2000 Kgs /hr.	:
Suitable for removing water from the surface of product. The equipment consists of :-	
a) S.S slotted tray with S.S. guides & supports.	
b) S.S hooper for collecting waste & drain water.	
c) S.S framework with rosta springs.	
d) Fixed speed drive with vibratory motors.	

19.	INSPECTION CONVEYOR	01 N o.	
	Capacity - 2000 Kgs /hr.	*	
	Suitable for manual inspection of product. The equipment consists of:-		
	a) PVC coated food grade endless belt (imported).	<i>i</i>	
	b) Side guides, rollers, framework will be from S.S.		
	c) Fixed speed drive with geared motor with S.S. plate & motor cover.		ar description of
20.	ELEVATOR FOR IQF	01 No.	e e
	Capacity - 2000 Kgs Of grains /hr.		
	Suitable for carrying the product to IQF. The equipment consists of :-		
	a) S.S. 304 framework with support.		
	b) Perforated buckets with side guards at both sides.		and the second
	c) Sprockets with S.S. shaft & bearings for driving buckets.		
	d) Fixed speed drive with geared motor.		
21.	Electrical Panel with Cabling, Internal Pipe Lining & All Electrical Fixtures which include all Lighting and Switches As Required.	01 No.	
22.	1 TPH BOILER	01 No.	

SECTION-B

TECHNICAL SPECIFICATION FOR IQF

Design Conditions:

1	Infeed Temperature	+15ºC
2	Discharge Temperature	-18ºC Equilibrated
3	Evaporating Temperature	-38ºC
4	Electrical Characteristics	AC400V, 3ph, 50Hz

Performance:

Products	Freezing Capacity	Refrigeration Requirement
Peas*	2,000 kg/hr	320 KW

^{*}For other crops as well

Freezer Technical Data:

1	Belt Type	C2060H SS304		
2	Belt Width	1280 mm		
3	Retention Time	Various mins.		
4	Maximum Product Clearance	150 m m		
5	Refrigerant/Feed	R717 Ammonia Pump	ed 4:1	
6	MCC Power Required	60 kW		
7	Coil Defrost Water	50 m³/h @ 2 bars & 25°C Shift Water Defrost		
8	Belt Washer	25 m ³ /h @ 2 bars & 25	5ºC Intermittent	
3		Fan Motors:	4 x 11 kW	
Company		Belt Drives:	2x 1.1 kW	
		Vibrators:	5 x 1.1 kW	
9	Motor Horsepower	Belt Blower:	1 x 3 kW	
		?	-ViiiiVVii V 1950	

SECTION -C (2 TPH IQF REFRIGERATION and 4000 MT Frozen Store)

BASIS OF DESIGN

1. IQF

 Product
 :
 Green Peas

 Capacity
 :
 2 MT/Hr.

 Infeed Temp.
 :
 10°C

 Discharge Temp.
 :
 (-) 18°C

 Evap. Temp.
 :
 (-) 40°C

 Cooling Load
 :
 91TR

2. Water Chiller

 Product
 :
 Green Peas

 Water Flow Rate
 :
 6000 LPH

 Water Inlet Temp.
 :
 30°C

 Water Outlet Temp.
 :
 2°C

 Cooling Load
 :
 56 TR

3. Frozen Cold Store 1-8

Product : Frozen Fruit & Veg

Storage Capacity : 500 MT

Daily Loading : 32 Ton/Day/Chamber

No. of Rooms : 04

Room Dimension : 21 x 12 x 8.5 m H

Product Inlet Temp. : (-) 15°C

Room Temperature : (-) 20°C

Cooling Load : 12 TR Each

4. Ante Rooms

No. of Ante Rooms : 1

Room Dimension : 48 x 4 x 8.5 m H

Room Temperature : 0 - 5°C
Cooling Load : 7.6 TR

TECHNICAL SPECIFICATIONS FOR REFRIGERATION SYSTEM

Sr. No.	Description	QTY
	000511/ 001 0005000 DA 01/4 CE FOR IOF	

;

SCREW COMPRESSOR PACKAGE FOR IQF

1. Ammonia operated screw package unit incorporating compressor block coupled to an electric motor and mounted on a common steel base frame, piped, wired and factorytested.

01 No.

Saturated suction temp.

(-) 38°C

Intermediate Temp.

(-) 5°C

Cooling capacity

96.81 TR

Absorbed power

102.55 HP

The screw package shall comprise of the following: -

- Capacity control: 10-100% step less control with hydraulically controlled slide valve
- Lubrication System: Forced Lubrication
- Oil Separator: Three step oil separation with coalescer horizontal oil separator.
- Oil Cooler system: Thermosyphone oil cooler
- Oil filter: Double oil filter with cleanable stainless steel 300 mesh oil filter element
- Suction filter: Suction gas filter with stainless steel mesh gas filter element
- Safety Relief Valve: Duel
- Compressor Control Panel: India PLC Panel
- Suction and discharge Check valves

- 2. ABB/ Siemens make 120 HP, 2-pole, IE2, IP 55, Class F Insulation, Ambient 50°C, IMB3 mount, TEFC Sq. Cage induction motor suitable for electric supply of 3ph x 415V x 50HZ, AC supply.
- 1. Danfoss/ Schneider / Equiv. make VFD for the above motor

01 No.

2. Priority Vessel with all necessary valve & fittings.

01 No.

Technical Specification

PUF Panel

PUF insulated (PUR) panels to be cladded on both sides with 0.5 mm thick (TCT) light profiled pre painted GI sheet in off white colour (RAL 9002); 120 gsm; RMP. The PUF density to be 40 ± 2 Kg /m³. The panels to be provided with Cam lock and tongue & Groove jointing system for leak proof joints The thermal conductivity of PUF to be $(0.023 \pm 5\%)$ w/m°k. For PUF Insulated panel thickness.

Panel Fixing Accessories

Panel fixing accessories comprise of plain pre – painted GI Sheet corner flashing, Sealant, Pop Rivets and aluminum / PCGI Sheet angles. Aluminum Tee with suspensionssystem for ceiling panel support

Floor Insulation with PUF Sheets

The Floor Insulation to be with PUF Sheets conforming to IS: 4671-1984, in double/single layer. The density of PUF Sheet to be 40 ± 2 Kg/m³. The supply includes sufficient quantityof vapor barrier such as tar-felt, polythene sheet and blown bitumen of 85/25 Grade. The floor insulation to be laid as per IS: 661-1974

Hinged door

Hinged Doors comprising Door Shutter cladded on both sides with 0.5mm thick (tct) plain pre-painted GI sheet in Off- white colour. Door to be fitted with standard door fittings comprising Hinges, Locking Arrangement with Emergency Push Rod, and Gasket suitable

Motorized / Manual Horizontal Sliding Doors

Motorized / Manually Operated Horizontal Sliding Doors to be complete with sliding rail, door shutter cladded on all sides with 0.6 mm thick Pre-painted GI Sheet, PVC reinforced door-frame and be fitted with EPDM gasket suitable sliding arrangement

PVC STRIP CURTAINS

PVC strip curtains required to maintain Cold Storage Temp. & Hygienic Environment by Restricting Insect, Dust & Hot Air. Creates Dust Free & Clean Environment Inside cold rooms, process area etc.

Pressure relief Valve

The walls and ceilings of cold rooms are constantly subjected to strains variations came by pressure variations, either from inside and from outside. The FERMOD valves makes it possible to balance internal and external pressure, through venting

IQF - FROZEN STORE

А	Supply of Items:	Unit	Qty	Unit Rate	Amount
1.0	Supply of PUF insulated Composite wall and ceiling panels				
1.1	120 mm Thick PUF Panel for wall and ceiling in Cold Store	Sq. m	6,055.00		
1.2	60 mm Thick PUF Panel for ceiling in IQF Area	Sq. m	880.00	1	
2.0	Manual Sliding Door of Size 1500 mm x 2100 mm x 120 mm thick	Nos.	9		
3.0	Floor Insulation with PUF Sheets in single layer. PUF Density will be with vapour barrier i.e., tar-felt, bitumen and Polythene Sheets	40 ± 2 kg/	cum/cum		
3.1	120 mm thick without Ante room	Sq. m	2110		
4.0	Panel Fixing Accessories comprising:				
4.1	Sealant, pop rivets and flashings, PUF Chemicals, Aluminum tee only.	Sq. m	6055		
4.2	Pressure Relief Valve	Nos.	16		
4.3	PVC Strip Curtains for Doors	Nos.	9		
5.0	Installation				
5.1	Installation of Panels	Sq. m	6055		
5.2	Installation of Floor Insulation	Sq. m	2 1 10		
5.3	Installation of Hinged Door	Nos.	9		

PRICE SCHEDULE include (Design, Supply, Installation, commissioning, Trail run)

INCLUSIONS

- Road crossing bridge and primary support (interconnection of rafter for piping and hanging for air cooling unit) for plant room, cold room and process area.
- All masonry work such as foundations for equipment, cutting and making good of holes in the walls, structural supports, plastering and flooring work etc.
- Make up water connection and drain piping Inside the Frozen/Chiller Store
- Unloading, shifting of equipment at site and transportation.

<u>& Machineries including Puff Panel works and Stacking</u>
<u>Arrangements for Potato Cold Storage-3000 MT and the packhouse for Potato capacity 2MT/Hr.</u>



BASIS OF DESIGN

BASIS OF DESIGN

1. Cold Store 1 - 2

Product

Potato

Storage Capacity per chamber :1500MT

Daily Loading :

75 Ton/Day/Chamber

No. of Rooms

02

Room Dimension

24 x 18 x 12 m H

Product Inlet Temp. : 25°C

Room Temperature : 2°C

Relative Humidity : 85 - 90%

Cooling Load : 26 TR Eac

26 TR Each

SECTION A

TECHNICAL SPECIFICATIONS FOR REFRIGERATION SYSTEM

Design, Supply, Installation, Testing, Commissioning of Plant & Machineries including Puff Panel works and

<u>o.</u>	<u>Description</u>		Unit	Qty.	<u>Unit</u> Rate	Amount
Ì	High Stage Co	ampressor For Cold Store	Nos.	1.00	1	
	high speed s	ingle stage multi cylinder reciprocating	Ì	i		
	ammonia cor	npressor, complete with Oriver				
No. of the last	accessories o	omprising of coupling and coupling	-			i
	guard,Safety	valve, Oil sight glass, Suction and				*
	Discharge va	ives, tools, wrenches & foundation				
	bolts & gauge	cum control panel and capacity		1		
	control arran	gement, ammonia head & oil cooling		110000		
_	and skid mou	inting.		4		
	<u>Intermediat</u>	<u>: (-) 5°C</u>				
	<u>e Temp.</u>					
	<u>Condensing</u>	: 38°C				
إ	Temp.		į			
1	<u>Capacity</u>	<u>: 55 TR</u>				
- [Power	: 63 BHP	1			j
	Consumed					
	Rpm	: 960				<u>,</u>
1						
-	-					
		oil separator flanged connections with	Nos.	1.00		
 -	companion fl	anges and oil drain valve.	encerne me mentence			and the second of the second o
\dashv	APD / Finesen	s make 75 HP, 4-pole, IE2, IP 55, Class F	Nos.	1.00	1/67	22 226 200

1	hand at a later code trains are a tree e-			
	Insulation, Ambient 50°C, IMB3 mount, TEFC Sq.			
	Cage induction motor suitable for electric supply of	!		
	3ph x 415V x 50HZ, AC supply with slide rails for			
ļ	compressor.		1.00	
4	L&T/ Equiv make star delta starter for the above	Nos.	1.00	
	motors.			
<u>5</u>	High Stage Compressor For Cold Store	Nos.	1.00	
:				
	high speed single stage multi cylinder reciprocating			
	ammonia compressor, complete with Fly-wheel,			
	Safety valve, Oil sight glass, Suction and Discharge			
	valves, Driver accessories comprising of motor			
	pulley, V-belts and belt guard, tools, wrenches &			ļ
	foundation bolts & gauge rum control panel and			5-a
	capacity control arrangement, ammonia head & oil			
	cooling and skid mounting.			
	Account of the contract of the			
	- I have a large			
	Intermediat : (-) 5°C			
	e Temp.			
	Condensing : 38°C			
	Temp.			
	Capacity : 28 TR			
	Power : 33 BHP			
	Consumed			
	<u>Rpm</u> : 960			
6	cyclone type oil separator flanged connections with	Nas.	1.00	
-	companion flanges and oil drain valve.			:
7	ABB/ Siemens make 40 HP, 4-pole, IE2, IP 55, Class F	Nos.	1.00	
	Insulation, Ambient 50°C, IM83 mount, TEFC Sq.			
	Cage induction motor suitable for electric supply of			
	3ph x 415V x 50HZ, AC supply with slide rails for			
	compressor			
8	L&T/ Equiv make star delta starter for the above	Nos.	1.00	
<u>~</u>	motors.			
	THOUSE.			
<u>9</u>	ammonia receiver of size 20" Dia. x 16' Long	Nos.	1.00	
_	constructed with Liquid inlet And outlet valves,			
ļ	safety valve, charging valve, drain valve, Purge			
	valve, pressure gauge and gauge glass with valves.			
10	LP Receiver Far Cold Store	Nos.	1.00	
===	LI NESCITEI (OI COM STOIS	1103		

;

11	ammonia low pressure receiver 42"dia x 12' Long constructed with liquid inlet & outlet valves, safety valve, gauge glass with valves, pressure gauge with valve saddle supports, and pump out connection with valve. Also incorporating all the nozzles and valves for easy connection with ACU's and suction-discharged lines hermetically sealed liquid ammonia pump for ammonia recirculation with motor and accessories comprising of suction strainer, suction and	Nos.	2.00		
12	discharge valves, check valve. Set of Danfoss /Manik make controls for liquid re-	Nos.	1.00		
And the second s	circulation system comprising of: Electronic Float switch: 03 Nos. Pressure Differential Controller: 02 Nos. Differential Pressure Regulating Valve: 01 No. Liquid line solenoid valve: 01 No. Frost-free gauge glass: 01 No.	<u>11022</u>			
13	wall mounted / ceiling suspended frigid coil air Cooling unit complete with SS Tubes & AL finned cooling coil. Total GI enclosure, drain pan, axial flow fan with motor, water defrost arrangement etc. Cold Store 1 – 2 Capacity: 7 TR @5°C No. of Coil: O5 Nos. Each	Nas.	10.00		
14	Set of Danfoss /Manik make Controls for Coil: Liquid line solenoid valve Digital Temp. Indicator cum controller	Nos.	2.00	- Automotive of the Automotive of	
- <u>15</u>	MS 'C' class refrigerant pipes, pipe fittings and ammonia valves to interconnect above equipment in the system comprising of suction, discharge, liquid and oil lines as per PID and based on compact plant layout.	Lot.	1.00	1	



16	G.I 'B' class pipes, pipefitting and valves for condenser make up water, cylinder head cooling defrost and drain line piping as per PID and based on assumption that condenser shall be placed at a distance have not more than 10 m from the plant room	Lot.	1.00	
17	PUF insulation for accumulators/vessel, suction line, liquid lines and wet return lines with fixing material bitumen/ CPRX compound and aluminum cladding of 26G with in battery limit.	Lot.	1.00	Consideration and the second of the second o
18	Structural Material for pipe installation and plat form Piping support to be fabricated and installed at site with steel channel and steel angle distance between the supports to be Approx. 5 meters, with variance depend on the building condition.	Lot.	1.00	The second secon
19	MCC panel will be cubical type switchboard with bus bar, Incoming ACB, Indicating lamps, push buttons, switches, fuses, voltmeters, Voltmeter switch, ammeters, ammeters switch and starter for a) compressors motor, b) condenser fan motor & pump, c) Cooling coil fan motor,	<u>Lot.</u>	1.00	
<u>20</u>	Power & Control cabling with cable tray for complete refrigeration plant.	Lot	1.00	
<u>21</u>	manual gas purger with safety valve for purging non-condensable Gases from the system.	Lot	1.00	

:

<u>22</u>	First charge of ammonia gas and Jubricant compressor oil.	Lat	1.00	
<u>23</u>	Installation, Testing & Commissioning of the complete refrigeration plant and putting in operation. Our scope is as follows:	<u>Job</u>	1.00	
	- Erection of the equipment as per our layout with proper operation and alignment - Connecting various equipment's with pipelines, fittings, controls and instruments - Painting of Equipment & Piping - Pressure testing, charging of gas and commissioning of the plant.	to the state of th	; ; ;	
25	ALL ELECTRICAL FIXTURES INCLUDE ALL SWITCHES AND lighting AS REQUIRED -Complete Facility for Cold Storage and Packhouse.	<u>Lot</u>	1.00	
26	Dock leveller of platform with hinged lip made of profile and anti-slip steel. Pairs of super bumpers with heavy steel support. Hydraulic power pack suitable for p load of 40 tones as defined by EN 1398.	Nos.	1.00	
27	Stacking Arrangement		_	
Δ	Lot of MS Material for MS structure for Floor loading in each room made from MS Square Pipes, MS 'I' Beam, MS 'C' channel, MS Angle, MS Plate and other MS material	Kg (Appro x)	250000.0 D	
₿	Lot of Labor Job for MS structure for Floor loading in each room made from MS Square Pipes, MS 'I' Beam, MS 'C' channel, MS Angle, MS Plate and other MS material which is fabricated at site will all consumables like Electric Rod and Gas with labor job for painting. All MS material, Redoxide and Color which is required will be supplied by Vendor	Kg (Appro x)	<u>250000.0</u> <u>0</u>	
<u>C</u>	Wooden batten required for Wooden Flooring with accessories like strip and nails including installation.	Nos (Appro x)	140000.0	
D	Wooden Planks required for staircase inside the cold room with fixing material	Nos.	90.00	



E	COLOR AND PRIMER MATERIAL FOR STEEL STRUCTURE	Lot	1.00		No.
_			<u> </u>		
<u>28</u>	PUF Panel & Doors				
	-	4			
<u>A</u>	-	4	-		
1	Supply of PUF insulated Composite wall and ceiling	,			and the second s
_	panels.			<u> </u>	
1.1	100 mm Thick PUF Panel for wall and ceiling in	Sg.m	<u>3230</u>		
	Cold Store				
2	Hinged Door of Size 1200 mm x 2100 mm x 80	Nos.	<u>2</u>	To have been a second	
	mm thick			<u> </u>	
<u>3</u>	Floor Insulation with PUF Sheets in single layer.	-	3"	4	
	PUF Density will be 40 ± 2 kg/cum with vapour barrier i.e., tarfelt, bitumen and Polythene Sheets				
3.1	100 mm thick	Sq.m	998		
4	Panel Fixing Accessories comprising:			_	:
		Sq.m	3230		
4.1	Sealent, pop rivets and flashings, PUF Chemicals, Alumnum tee only.	<u> </u>	<u>5250</u>		
4.2	PVC Strip Curtains for Doors	Nos.	2		
5	Installation				
5.1	Installation of Panels	Sg.m.	3230		
		Sq.m.	998	<u> </u>	
<u>5.2</u>	Installation of Floor Insulation				
<u>5.3</u>	installation of Hinged Door	Nos.	2		
<u>6</u>	<u>Freight</u>	Nos.	1		
_	•	-	-		
<u>31</u>	<u>Civil work for Machineries</u>				
_			nt.		
v	Total	_		_	₹
_	GST@18%	_		-	₹
-	Grand Total	-		-	₹
	-	ļ	<u> </u>		

Technical Specification

<u>PUF Panel</u>

PUF insulated (PUR) panels to be cladded on both sides with 0.5 mm thick (TCT) light profiled pre painted GI sheet in off white colour (RAL 9002); 120 gsm; RMP. The PUF density to be 40 ± 2 Kg /m³. The panels to be provided with Cam lock and tongue & Groove jointing system for leak proof joints The thermal conductivity of PUF to be $(0.023 \pm 5\%)$ w/m°k. For PUF Insulated panel thickness.

Panel Fixing Accessories

Panel fixing accessories comprise of plain pre – painted GI Sheet corner flashing, Sealant, Pop Rivets and aluminum / PCGI Sheet angles. Aluminum Tee with suspensionssystem for ceiling panel

support



Floor Insulation with PUF Sheets

The Floor Insulation to be with PUF Sheets conforming to IS: 4671-1984, in double/single layer. The density of PUF Sheet to be 40 ± 2 Kg $/m^3$. The supply includes sufficient quantity of vapor barrier such as tar-felt, polythene sheet and blown bitumen of 85/25 Grade. The floor insulation to be laid as per IS: 661-1974

Hinged door

Hinged Doors comprising Door Shutter cladded on both sides with 0.5mm thick (tct) plain pre-painted GI sheet in Off- white colour. Door to be fitted with standard door fittings comprising Hinges, Locking Arrangement with Emergency Push Rod, and Gasket suitable.

Motorized Horizontal Sliding Doors

Motorized / Manually Operated Horizontal Sliding Doors to be complete with sliding rail, door shutter cladded on all sides with 0.6 mm thick Pre-painted GI Sheet, PVC reinforced doorframe and be fitted with EPDM gasket suitable sliding arrangement.

PVC STRIP CURTAINS

PVC strip curtains required to maintain Cold Storage Temp. & Hygienic Environment by Restricting Insect, Dust & Hot Air. Creates Dust Free & Clean Environment Inside cold rooms, process area etc.

Pressure relief Valve

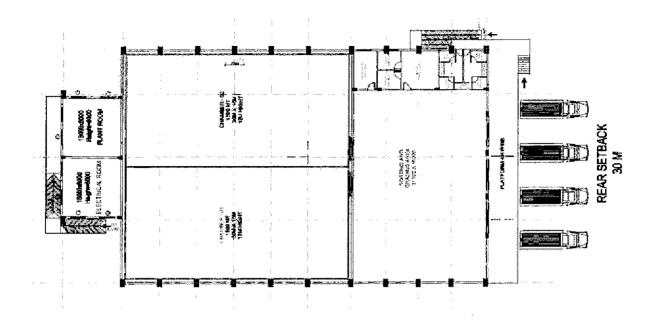
The walls and ceilings of cold rooms are constantly subjected to strains variations came by pressure variations, either from inside and from outside. The FERMOD valves make it possible to balance internal and external pressure, through venting.

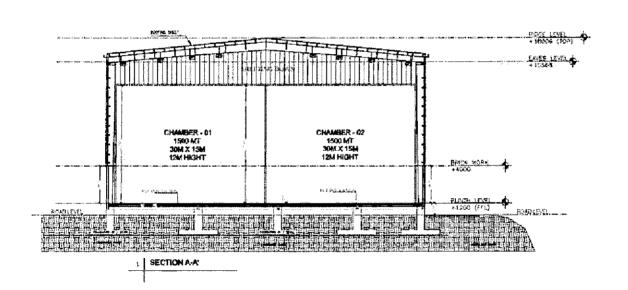
PRICE SCHEDULE: Include (Design, Supply, Installation, commissioning, Trail run & AMC)

INCLUSIONS

- Road crossing bridge and primary support (interconnection of rafter for piping and hanging for air cooling unit) for plant room, cold room and process area.
- All masonry work such as foundations for equipment, cutting and making good of holes in the walls, structural supports, plastering and flooring work etc.
- Make up water connection and drain piping Inside the Frozen/Chiller Store
- Unloading, shifting of equipment at site and transportation.







SORTING, WASHING, DRYING & GRADING LINE CAP. 2 MTPH

SECTION B

TECHNICAL SPECIFICATIONS FOR SORTING, GRADING, WASHING AND

PACKING.

sorti	ng Grading Line for Potato			
S. No.	Description	Qty.	Unit Rate	Amount
1	BULK HOPPER	1.00		
	This hopper is design to feed produce in Bulk quantity in processing line. It acts as buffer in grading. Arrangement provided for spreading produce across the conveyor.			
<u></u>	The hopper is design in such a way that it can be fed by trolley on big bags.		SSYSTE	

	Authority State Analysis and		142.111	
	We provide suitable inclination to the machine so that flow rate is always even.			77
- "	Length: 7500 mm Width: 3000 mm Power: 10 HP, 3 Ph			
2	SOIL REMOVER	1.00		
	This machine is mounted with bulk hopper. It is most			de al constitution de la constit
	efficient & gentle way of pre-cleaning. SS Rollers are			
	designed in such a way to take out loose dirt and loose			
	skin. This machine enhance the capacity of the line and			
	reduce the soil particle to go into the other machines.	-		
	Length: 1500 mm Width: 1200-1400 mm Power: 1.5 HP, 3 Ph			
3	WATER DUMPING TANK	1.00		
	Consisting of UHMWPE Belt conveyor. Contact parts made			
	of stainless steel and structure, pipelines also stainless			
	steel. The products will be dumped into wet hopper.			
	Water will soften surface soil of produce. Water jets			
	moves product up to belt conveyer and further conveyed			
	with the help of clit type Belt conveyor.	4		
		-		
	Sprinkler/water jet arrangement will be provided on the top of the moving products by a water pump and			
	pipelines. Water will be sprayed on the products while			
	they move forward slowly. This washing process is			
	automatic only the machine should be connected with a			
	constant water supply point.			
	Length : 4300 mm.	1]		
	Width: 600 mm of Belt Width Motor Power: 2 HP. 3 PH	1 1		
	Pump power : 3HP.1PH	- American		
	M.O.C : All Material in SS 304,Structure			
	pipe will be in M.SLength : 4300 mm.	 		
	Width: 600 mm of Belt Width Motor Power: 2 HP. 3 PH			
	Pump power : 3HP,1PH			
	M.O.C : All Material in SS 304,Structure			
	pipe will be in M.S.	-		
4	DRUM WASHER	1.00		
-	It consist of rotary drum.			
	To consist of forcer y armin.			
	Produce is fed into the drum washer and is washed as it			
	travels through rotating drum. High pressure spray jet	<u> </u>		
	provided inside the drum to remove debris (dirt, mud, cut piece) from ginger.			
		•		·- V:

		1	///		
	It effectively and gently washes produce while removing soil, mud and stones.				
	Debris (soil, mud, leaves) are collected in the Tank underneath the drum. Discharge valve regularly clean mud & other impurities.				
	Outfeed (inbuilit) elevator transfers produce to the next machine.	-			
	MOC : SS304				
	Length : 3000 mm Width : 1500 mm Power : 8HP, 3 Ph	_			
5	BY PASS CONVEYOR Length : 3500-4000 mm Width : 900 mm	1.00			udal
6		1,00			
	POLISHER				
	It is a rotary drum	1			
	with inbuilt row of nylon brusher. 1 No. Rs. 18,70,000 1,870,000.00				
	Produce enter through infeed chute directly from previous	1			
	machine. Two water pipes spray fresh water on the				
	produce as it travels in linear direction towards outlet				
	window. At the outlet produce slides down through spout with				
	zero drop position for smooth transition to down stream				
	equipment. Water tank provided at bottom for collection of water.	-			
	Length : 1800-2000 mm				
	Width : 1200-1500 mm	1			
	Power : 10 HP 3 Ph for motors 2 HP 1 Ph for pump	1			
7	FEED ELEVATOR	1.00			
	MOC: G.I. Sheet & M.S. Pipe Conveyor Length: 2500-3000 mm Conveyor Width: 600 mm				
	Powered by: 1 HP, 3 Ph geared motor				
	The products will be dumped manually on the hopper.				
	The hopper is designed in such a way that all the load of				
	the products gets centralized at the entrance of the belt.				
3	The belt elevated the products to the required height. DRYING SECTION	1.00			
,	This machine comprises of Aluminium Rollers on which	1.00			
	the products are conveyed after being washed. Structure				
	of mild steel. Contact parts made up of food graded		<u> </u>		
	materials. Complete with air circulating fan.		CRIS	YSTA	
		Attendoor East	NEW NEW	DELHI T	

.0	Length: 3500-4000 mm Width: 800 mm of roller Power: 2 HP 3 Ph. SORTING TABLE Consisting of PVC rollers. On the sorting section, rollers will move on their own axis & at the same time shall move forward. These rollers will carry the products forward. The workers standing on both sides of the machine will sort out the damaged or rotten products and will take those products out of the machine. Frame is made up of M.S. Length: 3000-3500 mm. Width: 910 mm of roller Power: 1H.P, 3 Ph SCREEN SIZER WITH COLLECTION BELT	2.00	To the state of th	
	Consisting of PVC rollers. On the sorting section, rollers will move on their own axis & at the same time shall move forward. These rollers will carry the products forward. The workers standing on both sides of the machine will sort out the damaged or rotten products and will take those products out of the machine. Frame is made up of M.S. Length: 3000-3500 mm. Width: 910 mm of roller Power: 1H.P, 3 Ph SCREEN SIZER WITH COLLECTION BELT		The second secon	
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.0	:1H.P, 3 Ph SCREEN SIZER WITH COLLECTION BELT	2.00		
0	\$1\$0 mm n/t < 0.00 mm n/t <	2.00		1
	\$1\$0 mm n/t < 0.00 mm n/t <			
	The sizer is fitted with vibrating rubber screens with perforations on its surface.			
	The width of the rubber belt is 90 cm. No of grades: 2+1 oversize			
	The graded products will be collected through collection belts.			
	Shaker assembly is fitted to vibrate the screen. Greater	1		
1	grading efficiency than other types of graders due to the			Annual Control
ĺ	orientation of the products on the screens.			5 5
	For each module:			
tion in	Length: 1800 mm (approx). Width: 1400 mm			
	Power: 1.5 H.P			
	The conveyor will be fitted under the grading screen for			
	the collection of the graded products.			
	Length: 2400 mm			
	Width: 600 mm			
	Power: 0.5 H.P			
L	OVERSIZE COLLECTION BELT	1.00		
	Consisting of PVC food grade belt having side guide at the			
	both side at bottom. The conveyor will be fitted under the			
	grading screen for the collection of the graded products.			
	Length: 2400 mm			
	Width: 600 mm of belt			
	Power: 0.5 H.P			
<u> </u>	SINGLE HEAD WEIGHER & BAGGER	1		
	Suitable for weighing bags for free flowing commodity.			
	Capacity: 2-5 TPH Capacity: 2-5 TPH			
	Accuracy: +- 200-250gm		Section 1	
	Range: upto 20-50kg bags/crate.		And and Arthur Stages	
	Manufactured with a double belt feed system. Crop is fed			d one
4	up in big hopper. At initial both belts are running. Main		1. 1. 2. 2. 2. 3.	
	belt stop before the target weight. Now narrower belt			

Once the target weight is reached, we need to replace the bag with the help of clamp. Adjustable plateform provided. Whole system will control through PLC prgramming & servo motors. ELECTRIC CONTROL PANEL (PLC BASED) The motor control panel will be equipped with an incoming supply ON/OFF switch along with VAF meter. All motor starters will be provided with short circuit and overload protection. The DOL, SD, Soft starter and VFD will be given as per machine requirements. Also 2nos. 6/15A sockets of 230V AC will be provided for ancillary equipments, lights etc. See the following for detailed features: a) Motor Overload Protection b) Motor Short Circuit Protection c) Door Interlocking d) Emergency Stop e) Fuse Protection at starters control f) Motor Status (ON/Trip Indication) g) Supply Indication h) FRLS Wire i) Supply Fault Indication j) Control Supply Healthy Indication k) Isolated Control Supply i) Supply Metering m) Panel Light n) Under & Over Voltage Protection o) Single & Reverse Phase Protection o) Single & Reverse Phase Protection o) Single & Reverse Phase Protection j) Thermostat Controlled Panel Fan ERCTON & COMMISSIONING CHARGES SUPPLIER SCOPE (AGROSAW) 1.Assembly & Erection of Equipment. 2. To arrange unskilled labour and masons required for assembly & erection of plant. 3. To arrange crane, fork lift, chain block, floor breaker, hammer drill, welding machine & any other heavy tool. 4. Electrical connection to all equipment from the supplied electrical control panel. Electric control panel shall be installed at maximum distance up to 5 m from the machine, distance beyond 5m shall be to the customer account, laying of cables shall be under ground in PVC plpes.		feed the bag to achieve target weight.		
provided. Whole system will control through PLC prigramming & servo motors. 13 ELECTRIC CONTROL PANEL (PLC BASED) The motor control panel will be equipped with an incoming supply ON/OFF switch along with VAF meter. All motor starters will be provided with short circuit and overload protection. The DOL, SD, Soft starter and VFD will be given as per machine requirements. Also 2nos. 6/16A sockets of 230V AC will be provided for ancillary equipments, lights etc. See the following for detailed features: a) Motor Overload Protection b) Motor Short Circuit Protection c) Door Interlocking d) Emergency Stop e) Fuse Protection at starters control f) Motor Status (ON/Trip Indication) g) Supply Indication h) FRIS Wire i) Supply Fault Indication j) Control Supply Healthy Indication k) Isolated Control Supply i) Supply Metering m) Panel Light n) Under & Over Voltage Protection o) Single & Reverse Phase Protection p) Thermostat Controlled Panel Fan ERECTION & COMMISSIONING CHARGES SUPPLIER SCOPE (AGROSAW) 1.Assembly & Erection of Equipment. 2. To arrange crane, fork lift, chain block, floor breaker, hammer drill, welding machine & any other heavy tool. 4. Electrical connection to all equipment from the supplied electrical control panel. Electric control panel shall be installed at maximum distance up to 5 m from the machine, distance beyond 5m shall be to the customer account, laying of cables shall be under ground in PVC pipes.			-	
Servo motors. ELECTRIC CONTROL PANEL (PLC BASED) The motor control panel will be equipped with an incoming supply ON/OFF switch along with VAF meter. All motor starters will be provided with short circuit and overload protection. The DOL, SD, Soft starter and VFD will be given as per machine requirements. Also 2nos. 6/16A sockets of 230V AC will be provided for ancillary equipments, lights etc. See the following for detailed features: a) Motor Overload Protection b) Motor Short Circuit Protection c) Door Interlocking d) Emergency Stop e) Fuse Protection at starters control f) Motor Status (ON/Trip Indication) g) Supply Indication h) FRLS Wire i) Supply Fault Indication j) Control Supply Healthy Indication k) Isolated Control Supply i) Supply Metering m) Panel Light n) Under & Over Voltage Protection o) Single & Reverse Phase Protection p) Thermostat Controlled Panel Fan 14 ERECTION & COMMISSIONING CHARGES SUPPLIER SCOPE (AGROSAW) 1.Assembly & Erection of Equipment. 2. To arrange unskilled labour and masons required for assembly & erection of plant. 3. To arrange crane, fork lift, chain block, floor breaker, hammer dril, welding machine & any other heavy tool. 4. Electrical connection to all equipment from the supplied electrical control panel. Electric control panel shall be installed at maximum distance up to 5m from the machine, distance beyond 5m shall be to the customer account, laying of cables shall be under ground in PVC pipes.		-		
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	6. To provide electric cables, electric items required for				
	electrification of complete plant.				
	7. Commissioning & Trial of machines with the product.				
	8.Training to user's staff for proper maintenance,				
	adjustment & operation of the machine.				
	CUSTOMER/PURCHASER SCOPE		SAMA AG		
	1. To unload & to transport the equipment from		ASSOCIATION CONTRACTOR OF THE PARTY OF THE P		
	unloading point to installation site.				
	2. Proper building & space for installation &				
	commissioning of the machines/plants & any other civil				
	work beyond supplier scope.				
	3. Electric cables from main grid to main control panel of				
	the plant with proper earthing.				
	4. Facility to work at site after office hours/holidays, if				
	required.				
	5To provide warehouse to store equipment which need				
	protection from bad weather conditions & thefts etc.				
	6. To arrange electric connection at site to run tools &				
	equipment required for installation & commissioning of				
	the project.				
	7. To arrange water for civil works & safe drinking water				
	for work force to be engaged to install & commission the				
	project. 8.To provide fruits/vegetables for trial purpose.				
	9. Licenses, permissions & necessary authorization for				
	installation if required.				
	10. To arrange operator/Responsible Person for				
	Operational/Maintenance works.				
	11. If customer wants cable to be laid on cable trays and				
	or in trenches then expenditure on this shall be to				
	customer account.				
	12. To arrange widening of gate height & width for				
	machine to enter in the building & after machines are				
	shifted inside godown, then customer shall arrange the				
	repair at his cost.				
	13. Noise reducing system, Firefighting, General Electric				
ĺ	installation, Work contract tax is in the scope of the				
	customer.				
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	Total				
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PRICE SCHEDULE: Include (Design, Supply, Installation, commissioning, Trail run)

INCLUSIONS

- Road crossing bridge and primary support (interconnection of rafter for piping and hanging for air cooling unit) for plant room, cold room and process area.
- All masonry work such as foundations for equipment, cutting and making good of holes in the walls, structural supports, plastering and flooring work etc.
- Make up water connection and drain plping Inside the Frozen/Chiller Store
- Unloading, shifting of equipment at site and transportation.

Note: LOT Details- This is the estimated quantity and the bidders are requested to visit the site and check the drawings before submission.

RISYSTE NEW DELHI