



Gujarat Cooperative Milk Marketing Federation Ltd, Anand
AmulFed Dairy (Previously known as AmulFed Dairy)

Plot No. 35, Nr. Indira Bridge,
Ahmedabad-Gandhinagar Highway
Village: Bhat, Dist: Gandhinagar
Gujarat, India-382428

Request for Bid (RFB) for "Installation and commissioning of **Complete Fully Automated Dense Phase Vacuum Conveying Line for Milk Powder and Finished Product Conveying Line**" at AFD "as per given scope of work.

AFD: PUR: PKS: CON/2019



AmulFed Dairy Gandhinagar
(A Unit of Gujarat Cooperative Milk Marketing Federation Ltd)
Near Indira Bridge, Ahmedabad-Gandhinagar Highway, Bhat,
Gandhinagar 382428
Phone 23969055-56 Fax 079-23969059

We invite sealed bids from eligible bidders for the following works: "Installation and commissioning of **Complete Fully Automated Dense Phase Vacuum Conveying Line for Milk Powder and Finished Product Conveying Line**" as per the scope of supply mentioned in the Inquiry".

Bid Reference	AFD: PUR: PKS: CON/2019
Bid Start	Starts from 15.04.2019
Submission	Up to 02.00 pm of 29.04.2019
Visit Date	22.04.2019 at 14.00 PM to 18.00 PM
Completion period	5 months

Eligibility Criteria :

The Bidder/Supplier shall have turnover, in each of the last three years, at least 20 Crores and must have executed, in the last three years at least a contract of similar nature.

Technical Specification : As per the Annexure-I

Submission of Bid :

Bidders fulfilling above eligibility criteria eligible for submission of bids in their name only.

- 1.1 The bid shall be submitted through hardcopy before above due date is acceptable.
- 1.2 The Price Break up sheet (in separate sealed Envelope) and technical document shall be submitted at the office address mentioned below.
- 1.3 The price Break up sheet should be entitled with reference of "Price Break Up for ,
"Installation and commissioning of Complete Fully Automated Dense Phase Vacuum
Conveying Line for Milk Powder and Finished Product Conveying Line".

Rights Reserved by AmulFed Dairy (A unit of GCMMF Ltd).

AmulFed Dairy (A unit of GCMMFLtd), at its sole discretion and without assigning any reason thereof, reserves the right to accept and / or reject the whole or part of any or all the bids received.

Validity :

The offer should be valid for 6 Months from the date of Bid opening.

Contact details: For any techno-commercial query you may contact Palak Shah (7359001666), or (E-mail-palak.shah@amul.coop) of Purchase department.

Annexure-I

Technical requirement Specification

INTRODUCTION

The AmulFed Dairy have a powder plant (Dairy Whitener/BF- capacity @ 5 MTPH /WMP, SMP- capacity @ 7 . 5 MTPH). The Purchaser intends to install 3nos. 27/13.5 grm small pouch Packing double head M/Cs at 150 TPD Milk Powder Plant, AMULFED Dairy, Gandhinagar and for that AFD invite competitive bids for design, supply, installation, testing, commissioning, training and service cover of **COMPLETE FULLY AUTOMATED DENSE PHASE VACUUM CONVEYING LINE** for conveying milk powder.

The entire contract broadly comprises three parts:

Part-A: Design and supply of equipment and accessories.

Part-B: Labor job for installation, testing & commissioning of equipment and accessories.

Part-C: Standby operations for a period of one year from the date of commissioning standby operation.

Broad Scope

- Design, Supply, Installation, Testing, Commissioning, Training and Documentation of **COMPLETE FULLY AUTOMATED DENSE PHASE VACUUM CONVEYING LINE** for conveying milk powder from Powder silo to 3nos. 27/13.5 grm small pouch Packing M/Cs at 150 TPD Milk Powder Plant, AMULFED Dairy, Gandhinagar.
- Design, Supply, Installation, Testing, Commissioning, Training and Documentation of **PACKED PRODUCT CONVEYING SYSTEM** from 27/13.5 grm small pouch Packing M/Cs to existing installed conveyors at 150 TPD Milk Powder Plant, AMULFED Dairy, Gandhinagar.
- The Supplier shall be responsible for the supply and erection of all equipment, pipe work, process valves and fittings, access ladders/tables and maintenance platforms, railings, instrumentation, electrical equipment, power and control cable, switchgears, control electronic systems and automation. As this new system shall be added to existing plant, required IO to be used from existing control system spares, if possible .otherwise necessary control panel shall be added to existing control system. Necessary modification in existing control system software shall be done in order to run this new addition in fully automatic mode.
- The Supplier shall be responsible for the design, supply and erection of entire Control & Automation (C&A) system.

1.0 Basis of Design

Dense phase vacuum conveying systems use high capacity vacuum pumps (up to 99% vacuum) to convey milk powder from a silo to a vacuum hopper where the air and product are separated by a filter.

When the vessel is full, the vacuum is isolated and the conveyed product is discharged into the destination silo. The product conveyed through the pipeline at a controlled low velocity, usually in a fluidized state to reduce friction and pressure drop.

Systems generally operate on a batch basis, as follows:

- the vacuum pump draws powder to the vacuum hopper until full
- the vacuum isolation valve closes and the discharge valve opens
- The conveyed product is discharged from the receiving vessel on a continuous basis by a rotary airlock
- conveyed powder is emptied from the vacuum hopper
- the discharge valve is closed and the cycle repeats.

Design parameters for Vacuum down conveying

S.N.	Parameter	Description
1	Product to be conveyed	Agglomerated DW, SMP, BFP and WMP.
2	Basis of design	Agglomerated DW /BF
3	Rate of delivery to Packing machine ex. surge hopper	1.500 TPH per line (design Basis)
4	Agglomeration Breakage	4-5 Points Between silo outlet and packing hopper of packing machine.

1.0 POWDER DOWN CONVEYING (VACUUM CONVEYING)

The complete down conveying line from powder silo to surge hoppers / Packing hoppers shall be fully automated vacuum conveying line. Presently all 4nos powder silos have 3 nos. individual down conveying lines, out of which one line shall be dedicated only for 25kg packing machine and the other 2Nos. conveying lines shall be catering to other FFS and Jar packing machines . This new additional line shall be connected to all the 4 powder silos .After installation of this addition line, All the powder silos can feed to any of the 4Nos.down-conveying line which shall subsequently feed to their respective dedicated packing machines. All the conveying lines selected from same powder silo to run all the packing machines should be considered. Supplier has to ensure that new additional line will not affect the performance of existing 3nos. conveying lines.

The powder shall be conveyed from storage silos and subsequently packed in 3nos. 13.5/27gm pillow pouch.

All packing, buffer & surge hoppers shall be provided with suitable type high and low level switches, automated valves & air vent. All powder contacting equipment shall be of SS 304 material of construction. Additional new Vacuum conveying line shall have a vacuum pump, vacuum hopper, rotary valve, powder sifter, set of surge hoppers and vibrating tubes to transport powder to packing machine hoppers.

The system shall comprise of:

1.1 IMPORTED SS LONG RADIUS BEND FOR VACUUM CONVEYING LINE

Quantity : 1 Set
MOC : AISI 304

1.2 SS PIPING WITH VALVES, INSTRUMENTS & CONTROLS FOR VACUUM SYSTEM

Quantity : 1 Lot
MOC : SS 304
Actuated On off and Control Valves Make:- Keystone

SS piping with fittings, bends suitable for conveying lines operating under vacuum from the powder storage silos to surge /Packing hoppers . Sanitary design type automated valves, manual valves, control valves , sight glasses, instruments & controls and vacuum systems is to be provided as per the system requirements. Inside Plant Area all Cable tray are SS 304 Cage type.

1.3 INTERMEDIATE DUCTS / PIPES & FITTINGS

Quantity : 1 Lot
MOC : SS 304

1.4 VACUUM HOPPER (ABOVE SIFTER)

Quantity : 1No.
Capacity : suitable
MOC : AISI 304
Make : Nucon

With the following features:

- SS 304 dairy grade design
- Electronic Level Indicator with control system
- inlet connections, and support framework to suit installation
- Fluidizers
- Insertable filter with Reverse jet compressed air pulsing
- Necessary instruments shall be provided.

1.5 ROTARY VALVE BELOW VACUUM HOPPER

Quantity : 1No.
Capacity : suitable
MOC : AISI 304
Make : Nucon / DMN

Rotary valve provided at the outlet of the vacuum hopper with the following features:

- SS 304 stainless steel, cast body & end plates

- SS 304 stainless steel sanitary rotor
- Air purged sanitary seals
- Round entry
- Drive motor - geared type VFD operated
- Quick clean/Easy slide with Rail type imported Rotary valve including safety interlock system shall be considered.
- Shall be equipped with gear motor & solenoid valves for compressed air for blowing of air to sanitary seal.
- Electric motor shall be Energy Efficient in design (minimum IE-3).

1.6 POWDER ROTARY SIFTER

Quantity : 1No.
 Capacity : suitable
 MOC : AISI 304
 Make : Nucon /Suitable Equivalent

With the following features:

- Dairy grade demountable punched plate perforated screen
- screen punched plate
- Solenoid valves for compressed air for blowing of air to sanitary seal.
- Motor and drive
- SS304 guard
- Electric motor shall be Energy Efficient in design (minimum IE-3).

1.7 DIVERTER VALVES

Quantity : As per Supplier's Design
 MOC : SS 304 sanitary design
 Make : Nucon / Suitable Equivalent

Two way air operated gravity diverter valve made to sanitary design at the end of the sifter or at required place in the down conveying.
 The unit shall be quick demountable.

1.8 VIBRATING TUBES

Quantity : As per Supplier's Design
 MOC : SS 304 sanitary design
 Make : Nucon /Scan Vibro

For powder feeding to individual packing hopper for each packing machine. Actuated butterfly valve shall be provided wherever required for isolation. Electric motor shall be Energy Efficient in design (minimum IE-3).

1.9 POWDER HOPPERS FOR EACH PACKING MACHINE

Quantity : 1 Set
 MOC : SS 304

With the following features:

- SS 304 dairy grade sanitary design
- Electronic Level Indicator with control system
- Inlet connections, and support framework to suit installation

1.10 FLUIDIZER FOR POWDER HOPPER (IMPORTED)

Quantity : 1 Set

1.11 DUST COLLECTOR VENT FOR PACKING HOPPER

Quantity : 1 Set

MOC : AISI 304

This shall be integrated part of the packing hopper for excess air venting purpose and avoid dust to escape in packing area. Vent filter shall serve dual purpose of venting & duct collection system. Single Reverse Pulse filter shall be provided for dust collection on packing hopper.

1.12 INTERMEDIATE DUCT PIPE & FITTINGS

Quantity : 1 Lot

MOC : SS 304

From Vacuum hopper to packing machine, necessary valves, ducts, instruments, BFM fittings in the scope of supplier.

1.13 VACUUM PUMP FOR DOWN CONVEYING (IMPORTED):-

Quantity : 1 No.

MOC : SS 304 for air contact parts

With Suction filter, actuated butterfly valves for inlet

To provide a prime mover for conveying of the powder from the powder silo to all the packing lines. These vacuum pumps are specially designed/modified to suit vacuum conveying application. The system shall include motor, inlet filter, vacuum gauge, inlet isolation valve and oil drip tray. Spare vacuum pump should be integrated in such a way that it can be used for this new additional conveying line. Ratings, design to be made accordingly. Electric motor shall be Energy Efficient in design (minimum IE-3). Necessary lifting arrangement for maintenance shall be provided.

1.14 CANDLE FILTER / PLEATED FILTER

Quantity : 1 set

MOC : Housing SS 304

Pleated type filter Shall be provided in the suction line before the vacuum pump for the pump safety.

1.15 DEHUMIDIFIER FOR VACUUM CONVEYING SYSTEM

Quantity : 1 Set.

MOC : SS casing and 304 SS tubes with Al alloy fins with MS base frame.

It shall be used for dehumidifying supply air for Vacuum Conveying system by chilled water system. This is a finned tube heat exchanger. The air is reheated by steam passing through tubes. The dehumidifier shall complete with all intermediate steam & condensate piping, chilled water piping ,steam/chilled water stop valve, steam control valve, pressure &temperature gauge, steam trap with strainer, sight glass, by pass valves and condensate cock and PID temperature control system.

The heater shall have outer casing of SS sheet of 0.8mm thick with suitable mineral wool insulation. Removable insulation sections shall be provided to allow access to heater blocks.

1.16 SERVICE PLATFORM FOR ACCESS & MAINTENANCE

Quantity : 1 Lot

MOC : 4mm thick SS304 Chequered Plate, SS toe guard and SS Railing with supporting structure i.e RHS, Angle, etc in SS 304.

Permanent platforms , walkways, stairs, steps and hand rails shall be provided by the Supplier for easy and safe access to all the equipments for normal inspection, servicing, and maintenance functions including all critical instruments.

1.17 BFM FITTINGS

Quantity : 1 Lot

All required flexible between the equipments and ducts must have BFM Fittings with S.S spigots.

1.18 VIDEO CAMERA (CCTV)

Quantity : 1 Set

Location	Type of Camera	Qty
Packing section 10 mtr	PTZ	2

Supply ,Installation and commissioning of CCTV camera with communication with existing system in the scope of supplier.

2.0 PACKED PRODUCT CONVEYING SYSTEM

The system shall comprise of Belt type/ roller type/modular type conveyors for transfer of packed products within the go down and from one floor to other up to dispatch dock.

2.1 PACKED MATERIAL CONVEYING SYSTEM FROM PACKING M/C TO EXISTING CONVEYOR FOR DESPATCH AND ALSO ACROSS STORAGE AREA FOR STORING AND DISPATCH

The system shall comprise of Belt type/ roller type/modular type conveyors for transfer of packed products within the go downs and from one floor to down up to dispatch dock.

Quantity : 1 LOT

Capacity : Suitable

Type : Belt type/ roller type/modular type conveyors

MOC of frame for conveyors: MS powder coated

2.2 PACKED MATERIAL CONVEYING SYSTEM FROM 27/13.5 GRM PACKING M/C (FUTURE PROVISION M/C) AT 14 MTR TO EXISTING HORIZONTAL CONVEYOR

The system shall comprise of Belt type/ roller type/modular type conveyors for transfer of packed products within the go downs and from one floor to down up to dispatch dock.

Quantity : 1 LOT

Capacity : Suitable

Type : Belt type/ roller type/modular type conveyors

MOC of frame for conveyors: MS powder coated

3.0 Scope

- Design, Supply, Installation, Testing, Commissioning, Training and Documentation of additional new vacuum conveying line and related piping /ducting and modification with material.
- Design, Supply, Installation, Testing, Commissioning, Training and Documentation of Packed Product conveying related work and modification with material.
- Supply of feeder ,cable ,electrical hardware, cable tray, Cable tray installation and cable laying , Electrical and instrument connection related to case sealing m/c, check weigher ,metal detector m/c and all 3 nos. 27/13.5 grm twin head small pouch packing m/cs, off line weighing m/c shall be in bidder's scope.
- All electrical and instrumentation work related to job will be in supplier scope with required materials.
- The supplier will be responsible for instrument air line piping and connect to all consumption points.
- The supplier will be responsible for all utility line piping and connect to all consumption points.
- Modification of in existing automation system and scada will be in supplier scope with required materials. New packing machine (AmulFed scope) shall be integrated with necessary (profinet) communication port for signal handshaking with main SCADA. Successful performance as per the stated and specified parameters
- Coverage of defect liability for two years for the rated yield
- Proper training to team for operation & maintenance shall be provided.
- Service support and warranty for a period of 2 years from the date of Commissioning.
- Any other requirement for successful completion of the job on turnkey basis.
- Nitrogen piping from nitrogen receiver of 150TPD to all consumption points will be in the scope of supplier.
- The supplier shall be responsible for all piping and ducting work connected to additional new vacuum conveying line , packing hopper .
- The supplier shall be responsible for proper closing of all slab cut out and cable tray cut out with ss plate .

4.0 Battery limit

- The customer will be responsible for civil works. However the supplier shall provide the cut out details, foundation details, foundation bolts along with template/base frame.
- Case sealing m/c, Check weigher ,Metal detector m/c and 3 nos. 27/13.5 grm twin head small pouch packing m/cs, Off line weighing m/c will be supplied by customer however related to its installation and all electrical work in the scope of supplier.
- Electrical feeder with necessary hardware/switchgear for electric supply to equipment /

machine is in the scope of supplier.

- Electrical and instrument cabling related to job will be done by supplier.
- Necessary changes in existing Packing MCC will be in the scope of bidder.
- Necessary changes in automation will be in the scope of bidder.
- 415 V , 50HZ ,Three phase LT power shall be made available by customer at inlet of MCC with Suitable power cable including termination.
- Single point 230VAC UPS Supply shall be made available by Customer.

5.0 Submittals

- Elevations and sections drawings
- Operating Manuals.
- Two sets of hard and one soft copy of machine diagram, Operations and Maintenance Manual in English.
- P & Id Drawings.
- Layout Drawings.
- Electrical & Instrumentation Drawing.
- Complete technical specifications with MOC & make of each and every items/equipments shall be provided.
- Complete plc program with hard and soft copy with ladder logic must be provided

6.0 SPARES

Following items shall be included in the OEM's recommended two years critical and consumable spares .

- 1 no. overhauling kit of vacuum pump
- Each type level switch -1no. Each type
- Each type of Actuated valve , control valve of conveying line- 1no. Each type
- 1 Set of Pleated Filter
- 1 set of vacuum hopper bag
- 1 no Each Type vibrating motor

7.0 PERFORMANCE CRITERIA:-

- 1.Powder breakage from powder silo to packing hopper not more than 4-5 points.
- 2.Rate of conveying should be minimum 1500 kg/hour smoothly.

SPECIFICATION OF MILK POWDER:

Sr.	Parameter	Units	ADW	ASMP	AWMP
1	FAT		=>20.5% for DW =>18.5% for BF	<1%	>=26%
2	Moisture by mass		<=2.8 %	<=3.2 %	<=2.8 %
3	Sugar (Sucrose)		18% for DW 19% for BF	NIL	NIL
4	Wettability of powder at 45 degree C (after 72 hours of storage)	Sec	<30	<30	<30

5	Insolubility of powder	MI.	≤0.3	≤0.3	≤0.5
6	Coffee test (Final Packed Product)		-	-	-
	Particle on Top	NO	NIL	-	-
	Particle on Bottom	NO	<4	-	-
	Sediments	ML	<0.5	-	-
7	Free fat		<1%	-	<1%
8	Scorched particle		Disc A	Disc A	Disc A
9	Dispersibility minimum	%	85	85	85
10	Bulk Density at packed bag	gm/cc	0.45 – 0.55	0.50 – 0.57	0.45 – 0.55
11	Total Plate Count/ g, MAX		10000	10000	10000
12	Coliform/ 0.1 g, Max		Absent in 0.1g	Absent in	Absent in
13	Yeast & Mould count/ g, Max		Absent in 1g	Absent in 1g	Absent in 1g
14	E.coli/ 0.1 g, Max		Absent in 0.1g	Absent in	Absent in
15	Salmonella & Shigella/ 25 g, Max		Absent in 25g	Absent in 25g	Absent in 25g
16	S. aureus/0.1g		Absent in 0.1g	Absent in	Absent in
17	Anaerobic spore count/g, Max		Absent in 1g	Absent in 1g	Absent in 1g
18	Listeria monocytogens/g, Max		Absent in 1g	Absent in 1g	Absent in 1g

CBX Specification For FFS Machine Only:-

ASP/AMULYA					
	ITEM	PL Y	ID L X W X H In mm	MIN. BS: CS *	SEPARATORS DETAILS/ Remarks Nos.:DIMN:KRAFT:BS
1	13.5g Pouch CBX (For MDG Only) (Flute- B & C Combination)	5	520X 400X 300	13:300, Comp. CS- 500	5 Ply Ring of size: (255+ 395+ 515+ 395+ 255) mm X 300 mm (h) having mini. BS- 7.5 kg / Sq. cm ECT – 15kgf paper
2	27g Pouch Box (Flute- B & C Combination)	5	475X 405X 235	13:300, Comp. CS- 500	5 Ply Ring of size: (235+ 400+ 470+ 400+ 235) mm X 235 mm (h) having mini. BS- 7.5 kg / Sq. cm ECT – 15kgf paper

All bidders have to provide separate rates for Both Sections

Annexure-IV

Price Schedule Form		
Summary Sheet		
	Summary Heads	Amount
1	2	3
1	Total Ex-factory, Packed	
2	Transportation	
3	Insurance	
4	GST/Custom Duty	
5	Total Supply Price delivered at Site (1+2+3+4)	
6	Total Installation & Commissioning with GST	
7	Total Bid Price (5+6)	

Note:

1	Bid must be submitted strictly as per this pro forma (items break-up sheet shall be submitted in hard copy in sealed envelope at office address mentioned in IFB with marking of "DO Not Open Before").
2	Amount against Sr. No 1 to 3 & 7 must be the total worked out in items break-up sheet.
3	Please quote charges for transportation (Sr. no 4) and insurance (Sr. no 5) as a percent of ex-factory, packed (Sr. No 1).
4	List of Spares with unit prices, valid for one year, must be submitted.
5	All the bidders have to submit price considering EPCG/MEIS as well as considering Full custom duty. In all the cases all the responsibility till commissioning of the plant will remain of Bidder/Supplier.

Signature of Authorized Signatory of Bidder/Supplier

Payment Term of the tender:

Payment for supply, installation and commissioning contracts must be strictly as below:

- 1) 10% advance of total contract value (Supply + Erection & Commissioning) on submission of following:
 - (i) Acceptance of the order i.e.
 - a. Submission of the Duplicate copy of the order duly signed by the authorised signatory putting stamp of the Organisation.
 - b. Execution of the Contract Form.
 - (ii) Against a bank guarantee for equivalent amount valid for 60 days beyond the stipulated delivery (as per schedule of delivery/supply)/ completion period.
 - (iii) The Performance Security shall be in the amount of 10% of the Contract price up to sixty days after the date of completion of performance obligations including warranty obligations.
- 2) 10% of total contract value on first submission of Plant layout, and P&I Diagram for process and services. against submission of Bank guarantee valid for 60 days beyond the stipulated delivery (as per schedule of delivery/supply)/ completion period
- 3) Payment against Supply and erection of equipments/material:
 - a. 65% progressive payment of supply value against safe receipt of goods at site.
 - b. 65 % payable on erection value on progression of erection as per Joint Measurement Sheet within 30 days of submission of JMS.
- 4) 15% balance payment within 30 days of satisfactory commissioning of the plant.

- Notes:**
- a) Payment shall be made on complete supply of an item/group of items specified in the contract. No payment specified in the contract. No payment shall be made if supply of an item/group of items is incomplete.
 - b) For all the payments to be made against bank guarantees, The Bank Guarantees should be obtained from Nationalized Bank or ICICI Bank/HDFC Bank/Axis Bank/IDBI/HSBC

Liquidated Damages

Bidder/Supplier fails to deliver any or all of the Goods or perform the Services within the time period(s) specified in the Contract, the Purchaser shall, without prejudice to its other remedies under the Contract, deduct from the Contract Price, as liquidated damages as under:

a. For the Supply Component:

A sum equivalent to 0.5% of the delivered price of the delayed goods (As per the price break up furnished by the supplier and accepted by the Purchaser, which the supplier fails to supply within the time period specified in the contract for each week of delay.

b. For the Erection and Commissioning Component:

A sum equivalent to 0.5% of the un – executed portion of each week of delay or part thereof beyond the time specified in the contract for the successful completion of the plant.

The total amount so deducted as per above, shall not exceed 5% of the Contract value. Once the maximum is reached, the Purchaser may consider termination of the Contract.