

IDMC®
LIMITED

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Tender Document
for
Design, Engineering, Manufacturing, Supply, Installation, Testing, Commissioning, and Acceptance
of
12 Nos. Multi-Fruit Environmentally Controlled Ripening Chambers (ECRCs) for Mango and Papaya, and 4 Nos. Ripening Chambers (RCs) for Banana and Mango for MDFVPL Project, Kuppam, Andhra Pradesh, India

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1. Invitation for Bid

Enquiry Reference no.: IDMC/ Sourcing & VD/ 2026-27/ Enquiry/403 dated 19.11.2026

IDMC Limited invites sealed bids from original equipment manufacturers (OEMs) for Design, Engineering, Manufacturing, Supply, Installation, Testing, Commissioning, and Acceptance of 12 Nos. Multi-Fruit Environmentally Controlled Ripening Chambers (ECRCs) for Mango and Papaya, and 4 Nos. Ripening Chambers (RCs) for Banana and Mango for MDFVPL Project, Kuppam, Andhra Pradesh, India as per details given below:

Description of Tender	Design, Engineering, Manufacturing, Supply, Installation, Testing, Commissioning, and Acceptance of 12 Nos. Multi-Fruit Environmentally Controlled Ripening Chambers (ECRCs) for Mango and Papaya, and 4 Nos. Ripening Chambers (RCs) for Banana and Mango
Qty	1 Pack
Estimated Cost	INR 2.0 CRORE
Completion period (For the complete plant (design, manufacturing, supply, installation, testing, and commissioning))	9 months from the date of the Letter of Intent (LOI)/Purchase Order (PO) whichever is earlier
Earnest Money Deposit (EMD)	Not applicable
Mode of Tender	eProcurement at NCDFI eMarket portal, considering restricted tender of IDMC with single stage two bid envelope system (Part I- Techno-commercial Bid and Part II- Price Bid) through www.idmc.com (click procurement) OR https://www.ncdfiemarket.com/index.php/idmc/ and can be downloaded and used as tender document for uploading the offer. The invited bidders are required to submit their offer electronically through NCDFI eMarket portal. No physical tender/email is acceptable.
Eligible bidders	This invitation for bid is restricted to original equipment manufacturers to the invited bidders only and written communication sent through email by purchaser/NCDFI e-Market.
Query/support related to online portal during submission of bid	Mr Sachin Chaudhary +91 99786 28169 Mr Parth Parikh +91 70435 31188
Warranty Period	12 months from the date of successful

	commissioning, product trial & acceptance of the plant
Date of uploading of enquiry on NCDFI eMarket portal	21.11.2026
Last date, time and place for receipt of bids/ offers	12.12.2026 (Up to 1700 hrs IST)
Bid submission currency	INR

1.1. The bid document can be downloaded by registration from the link:
www.idmc.com (click procurement) OR
https://www.ncdfiemarket.com/index.php/idmc

1.2. Enquiry document:

Instructions to bidders, General conditions of contract, Special conditions of contract, Form of agreement, Acceptable forms of bank guarantees, Schedule of Requirement and technical specifications for all the items of works are indicated in this enquiry document.

1.3. Clarification on the bids:

The bidders may submit their queries / clarification if any through email by 30.11.2026 on email id – tenders_mech@idmc.com for consideration of the purchaser.

1.4. Opening of offers:

Bids will be opened by the tender opening committee of IDMC based on the offer received on the NCDFI Portal, bidders' presence is not required.

1.5. Offer validity:

The bid shall remain valid for a period of 120 (One hundred twenty) days from the date of bid closing.

1.6. Drawings:

Bidders to submit preliminary GA /dimensional drawing along with the offer.

1.7. Rights reserved by IDMC Limited:

IDMC may evaluate & consider bids both technical as well as financially beneficial to the project. It reserves the right to accept and or reject any or all the bids.

2. Instructions to bidders

(a)	Tender/Event Ref. No.:	IDMC/ Sourcing & VD/ 2026-27/ Enquiry/ 403 dated 19.11.2026
(b)	Transaction Fee Payment of transaction fee by NEFT/ RTGS in favor of IDMC Limited	Not Applicable
(c)	Incidental charges (in land) in case documents are to be sent by courier/post	Not Applicable
(d)	Event Start Date	21.11.2026
(e)	Event Close Date & time	12.12.2026, 17.00 Hours
(f)	Last Date and time for bid submission	12.12.2026, 17.00 Hours
(g)	Time and date of opening of bids	
	Part I – Techno-commercial bid	Bids will be opened by the tender opening committee of IDMC based on the offer received on the NCDFI Portal, bidders' presence is not required.
	Part II – Price bid	May be communicated later to responsive /technically qualified bidders who have accepted all techno commercial terms and conditions
(h)	Opening of bid	ONLINE at web portal (in presence of tender opening committee of IDMC)
(i)	Address for communication	IDMC Tender committee 124-128 GIDC Estate Vithal Udyognagar- 388121 Dist.- Anand (Gujarat) Tel: +91 2692 -220521 Email: tenders_mech@idmc.com
(j)	Time of completion	9 (Nine) Months for overall completion (from the date of notification of award of Contract (LOI)/ Purchase Order) whichever earlier
(k)	Amount of EMD	Not Applicable
(l)	Date and time for receipt of EMD. The EMD in original to be submitted to communication address as stated above in clause (i)	Not Applicable

(m)	Price Basis (Incoterm)	FOR MDFVPL Project, Kuppam, Andhra Pradesh, India
(n)	Packing & forwarding	In Bidder scope
(o)	Freight	FOR MDFVPL Project, Kuppam, Andhra Pradesh , India
(p)	Transit Insurance (Warehouse to warehouse)	FOR MDFVPL Project, Kuppam, Andhra Pradesh, India (Unloading at project site in IDMC Scope, however bidder shall be arranged their representative for supervision of unloading)
(q)	All applicable duties & Taxes in India	In IDMC scope

2.1. Eligible bidders:

This invitation for bid is restricted to original equipment manufacturers to the invited bidders only and written communication sent through email by purchaser/NCDFI e-Market.

2.2. Cost of bidding:

The Bidder shall bear all costs associated with the preparation and submission of its bid, and IDMC Limited, also hereinafter based on the context referred to as "the Purchaser", will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

2.3. Bidders to check the contents of enquiry documents:

The Bidder is requested to carefully examine all instructions, conditions, forms, terms, specifications, and drawings in the bidding documents. Failure to comply with the requirements of bid submission will be at the bidder's own risk. Bids which are not substantially responsive to the requirements of the bidding document will be rejected.

2.4. Documents to be submitted along with the offer/ bid:

The offer to be submitted by the bidder/ vendor shall comprise the following:

a. The Form of bid duly filled and signed.

b. Bidders: self-attested copies of documents defining the constitution, place of Registration and principal place of business.

c. Details of experience and past performance of the bidder on the executed contracts of similar nature within the last 5 years. The bidder shall also provide details of similar machines provided in last five consecutive years to the following geographies:

   i. Globally (excluding Asia)
   ii. Asia (excluding India)
   iii. India

d. List of customers and their contact details for reference.

e. All details as specified in the section technical details as per the format provided.

f. The complete enquiry document with filled in offer, has to be submitted duly signed & stamped by the bidder/ vendor.

g. The bidder should furnish a brief write-up, backed with adequate data, explaining his available capability (both technical and commercial) for manufacturing and design, engineering, manufacturing, supply, installation, testing and commissioning of the required equipment within the specified time of completion, after meeting all their current commitments.

h. Service setup of the bidder in India (if any).

i. The bidder shall submit a detailed technical offer including the layout, GA drawings, Process Flow Diagram (showing flow, temperature, pressure, and other relevant parameters), P&ID, equipment/instrument/electrical datasheets, automation architecture, detailed electrical panel and cable specifications, and a tentative schedule/Gantt chart (L1 schedule).

j. Additionally, the bidder shall provide a detailed list of all equipment with quantities proposed under import, the list of indigenous equipment with quantities, and a complete list of spare parts and special tools required for two years of continuous operation.

All pages of the offer documents shall be signed by person(s) duly authorized. Proof of authorization shall be in the form of a written Power of Attorney/ Authority letter which shall accompany the bid. All pages of the offer documents, where entries and amendments have been made, shall additionally be initiated by the person(s) signing the offer/ bid.

The complete offer/ bid shall be without alterations, interlineations, or erasures except those in accordance with instructions issued by IDMC Limited,

or as necessary to correct errors made by the bidder in which case such corrections shall be initialed by the person(s) signing the offer. No overwriting shall be permitted.

2.5. Clarification of bidding documents:

As specified above at clause no. 1.3

2.6. Mode and manner of submission:

2.6.1. Submission of bid shall be through NCDFI eMarket portal only. No physical/email bids shall be accepted

2.7. Currency of offer & payment:

The prices shall be quoted by the bidder as under:

2.7.1. Bidders shall quote in INR. All payments will be made in the currency in which the PO/contract will be awarded.

The payment will be only through an authorized bank, subject to forex and other regulations, including withholding taxes, if any, in force. The bank charges within India shall be borne by the purchaser.

2.8. The price schedule:

Technical Details Serial No.	Description	Qty.
1	Fruit Ripening System For ECRC Chamber (For 12 Chambers)	12 SET
2	Fruit Ripening System For RC Chamber (For 4 Chambers)	4 SET
3	Electrical system for ECRC & RC	1 SET
4	Spears for 2 year operation ECRC & RC	1 SET
5	Installation, Testing, Commissioning, acceptance & Training	1 Job
6	Non-Comprehensive AMC (minimum 4 Visits per annum & unlimited breakdown after warranty period) for 2 year	8 Visit
7	Comprehensive AMC (minimum 4 Visits per annum & unlimited breakdown after warranty period) for 2 year	8 Visit

2.8.1. The bidder shall quote the price in figures and words clearly specifying the currency. The said price shall be a comprehensive all-inclusive price for the design, engineering, manufacturing, supply, installation, testing, and commissioning including the obligations of any services and supplies as specified in the technical details or elsewhere in the bidding document.

2.8.2. The price will include the cost/ fee of any Technician/ Supervisor/ Expert to be deputed by the vendor at the site for installation, testing, commissioning and handing over, or any other related activity.

2.9. Offer validity & extension of validity if required:

Bids submitted shall remain valid for acceptance for a period of 120 days from the date of bid closing.

2.10. Submitted offer to be complete in all respect:

The bidder shall submit an offer which complies fully with the requirements of the bidding documents, including the basic technical design as indicated in the specifications.

2.11. Date of submission of offer/ bid:

The offer must be received by IDMC Limited on or before the date and time of submission as stated in the Invitation for Enquiry/ Tender. IDMC Limited may, at its discretion, extend the deadline for the submission of offer/ bid by issuing necessary instructions on email to all registered bidders, in which case, all rights and obligations of IDMC Limited and the bidders previously subject to the original deadline shall thereafter be subject to the new deadline as extended.

2.12. Late bids:

Any offer/ bid received by IDMC Limited later than the deadline for the submission of offers/ bids as prescribed by IDMC Limited will be subject to rejection.

2.13. Opening of bids:

The bids will be opened, scrutinized, and evaluated as per the qualification, scope and specification mentioned in tender and award the contract accordingly.

After the opening of offers IDMC Limited shall evaluate and process the same for finalizing the issuance of the Purchase order. The process shall be kept confidential - not disclosed to bidders/ any vendor or other persons not officially concerned with such process.

2.14. Undue influence by the bidder:

Any action to influence the procurement process or contract execution for undue advantage will be improper and may result in the rejection of the bidder's bid/ offer.

2.15. Clarification on offers/ bids:

To assist in the evaluation of offers/ bids, IDMC Limited may request the bidders/ vendors for clarification of their bids, including breakdown of unit rates. The request for clarification and the response shall generally be in writing but no change in the price or substance of the bid shall be sought, offered or permitted. The Purchaser may, depending on the nature of the query, contact the concerned bidder on the telephone number provided in the bid document only for the purpose of understanding and/ or resolving the query. For this purpose, the bidder is requested to provide the name and contact details of its designated officer.

2.16. Correction of errors:

2.16.1. The offers will be checked by IDMC Limited for any arithmetic errors in computation and summation. Errors will be corrected as follows:

2.16.2. "Where there is a difference between rates in figures and in words, the rates that correspond to the amounts worked out by the bidders, shall be taken as correct. However, when the amount of an item is not worked out or it does not correspond with the rates written either in figures or words, then the rates quoted by the bidder in words shall be taken as correct. When the rates quoted by the bidder in figures and words tallies but the amount is not worked out correctly, the price quoted by the bidder shall be taken as correct and not the amount."

2.16.3. The amount stated in the form of bid will be adjusted by IDMC Limited in accordance with the above procedures for the correction of errors, and with the concurrence of the bidder, shall be considered as binding upon the bidder. If the bidder does not accept the quoted rates (Price) of bid then his bid shall be rejected.

2.16.4. IDMC Limited reserves the right to accept or reject any variation, deviation, or alternative offers.

2.17. IDMC Limited's right to accept any offer/ bid and to reject any or all offers/ bids:

As mentioned above in clause no. 1.7

2.18. Notification of award and issuance of Purchase order:

Prior to the expiry of the period of offer/ bid validity prescribed in the enquiry/ bid documents, IDMC Limited will notify the finalized bidder/ vendor here in after referred to as the "/ Successful bidder/ Bidder", in writing on acceptance of their offer/ bid and issue a Letter of Intent/ Award, followed by a detailed Purchase order mentioning all the required terms and conditions and (hereinafter and in the Conditions of the Contract referred to as the "Contract price").

2.19. License and permit for goods/ services:

No license or permit shall be provided by Purchaser/ Owner/ IDMC Limited for the exports of goods and services being provided by the Successful bidder against this enquiry or work order.

2.20. Amendment to the bidding document:

At any time prior to the deadline for submission of bids, the Purchaser may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the Bidding Documents by amendment. The amendment will be notified in writing by mail to all registered Bidders.

2.21. Modification in the bid:

2.21.1. The Bidder may modify or withdraw its bid after the bid submission, provided that written notice of the modification or withdrawal is received by the Purchaser prior to the deadline prescribed for submission of bids.

2.21.2. No bid may be modified after the deadline for submission of bids.

2.22. Language of bid:

The Bid prepared by the Bidder and all correspondence and documents relating to the bid exchanged by the Bidder and the Purchaser, shall be

written in the English language, provided that any printed literature furnished by the Bidder may be written in another language so long as accompanied by an English translation of its pertinent passages in which case, for purposes of interpretation of the bid, the English translation shall govern.

2.23. Personal discussion:

If required, IDMC Limited may desire to hold personal discussions with shortlisted vendors. The discussions, if required, are likely to be held at IDMC Limited's office in Anand or through the Online Teams meeting. Date shall be intimated through e mail by designated person of IDMC.

3. General conditions of contract

3.1. Definitions and Interpretation:

3.1.1. In the Contract, as hereinafter defined, the following words and expressions shall have the meanings hereby assigned to them, except where the context otherwise requires.

3.1.2. OWNER/ PURCHASER/ IDMC shall mean IDMC Limited and shall include its successors and assignees, as well as its authorized representatives.

3.1.3. IDMCL shall mean IDMC Limited.

3.1.4. The bidder/ Vendor shall be the firm/party/individual who submits the offer/ bid against this enquiry.

3.1.5. Contractor/ Successful bidder/ Bidder shall mean the successful vendor/ bidder whose Offer/ Bid has been accepted by the Owner/ IDMC Limited and on whom a work order/ PO has been placed and shall include his heirs, legal representatives, and assignees.

3.1.6. Contract price/rate shall mean the prices/ rates of the accepted Offer/Bid

3.1.7. Contract shall mean the work order or Purchase order along-with articles of agreement, the conditions, the Annexure, the schedule of quantities, and/ or specifications attached herewith.

3.1.8. "Notice in writing" shall mean a notice in written, typed or printed characters sent (unless delivered personally or otherwise proved to have been received) by courier/ registered to the last known address or the registered office of the addressee and shall be deemed to have been received when in the ordinary course of post, it would have been delivered.

3.1.9. Site shall mean the actual place where the machine being purchased will be installed and commissioned as specified in technical specifications.

3.1.10. Month shall mean from the beginning of a given date of a calendar month to the end of the preceding date of the next calendar month.

3.1.11. Week shall mean seven consecutive days.

3.1.12. Day shall mean a day from midnight to midnight.

3.1.13. Award shall mean the written acceptance of the Offer/ Bid by IDMC Limited/owner given to the successful bidder/ Vendor/ Bidder.

3.1.14. Constructional Plant shall mean all appliances or things of whatsoever nature required in or about the execution and maintenance of the Works but does not include the materials or other things required/intended to form or forming part of the Works.

3.1.15. Specifications shall mean the specification referred to in the Enquiry Document/ Bid Document and any modification thereof or addition thereto as may from time to time be furnished or approved in writing by IDMC Limited.

3.1.16. Drawings shall mean drawings referred to in the specifications and any modification of such drawings approved in writing by IDMC Limited and such other drawings as may from time to time be furnished or approved in writing by IDMC Limited.

3.1.17. Approved/ Approval shall mean approval in writing, including subsequent written confirmation of previous verbal or written approval.

3.1.18. I.S.S. shall mean Indian Standard Specifications as published by Bureau of Indian Standards, India.

3.1.19. Government shall mean the Government of India or the Government in state of Gujarat.

3.1.20. Enquiry document shall mean the Bid document.

3.1.21. Headings and marginal note: All headings of and notes to the clauses of these Conditions of Contract or of and to the Specifications or any other bid document are solely for the purpose of giving concise indication and not a summary of the contents thereof, and they shall never be deemed to be the part of or be used in the interpretation or construction thereof or of the Contract.

3.1.22. Singular and plural: In this Contract document unless otherwise stated specifically the singular shall include the plural and vice-versa wherever the context so requires.

3.1.23. Cost: The cost shall be deemed to include all the overhead costs whether on or off the site.

3.1.24. Purchaser: IDMC Limited.

3.1.25. Installation: Something (such as a piece of equipment) that is put together and made ready for use.

3.1.26. Testing, commissioning and handover : It is the process of assuring that all systems and components of an industrial plant are designed, installed, tested, operated, and maintained according to the operational requirements and the Purchase Order specifications of the owner or final client.

3.2. Application:

These General Conditions shall apply to the extent that they are not superseded by provisions in other parts of the Contract.

3.3. Documents mutually explanatory:

Except if and to the extent otherwise provided by the Contract, the provisions of the General Conditions and Special Conditions of the Contract shall prevail over those of any other documents forming part of the Contract. Several documents forming the Contract are to be taken as mutually explanatory.

3.4. Program to be furnished:

3.4.1. The successful bidder shall, after the receipt of the PO, submit to the Purchaser a program showing the schedule of various activities weekly as well as monthly in which he proposes to carry out the supply, installation, testing and commissioning within the timelines agreed for inclusion in the contract.

3.4.2. If at any time it should appear to IDMC that the actual progress of the Works does not conform to the approved program, as referred above, the successful bidder shall produce, at the request of IDMC, a revised program showing the modifications to the approved program necessary to ensure completion of the Works within the time for completion as defined in the contract.

3.5. Standards:

The Goods supplied under this Contract shall conform to the standards mentioned in the Technical Specifications, and, when no applicable standard is mentioned, to the authoritative standard appropriate to the Goods' country of origin and such standards shall be the latest issued by the concerned institution.

3.6. Use of contract documents and information:

3.6.1. The Bidder shall not, without the Purchaser's prior written consent, disclose the contract, or any provision thereof, or any specification, plan, drawing, pattern, sample, or information furnished by or on behalf of the Purchaser in connection therewith, to any person other than a person employed by the Bidder in the performance of the Contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for purposes of such performance.

3.6.2. The Bidder shall not, without the Purchaser's prior written consent, make use of any document or information enumerated in clause 3.6.1 except for purposes of performing the Contract.

3.7. Patent rights and royalties:

The Bidder shall indemnify IDMC Limited from and against all claims and proceedings for or on account of infringement of any patent rights, design trademark or name or other protected rights in respect of any constructional plant, machine work, or material and for in connection with the supply of the machine or any of them and from and against all claims, proceedings, damages, costs, charges and expenses whatsoever in respect thereof or in relation thereto.

3.8. Inspection and tests:

3.8.1. The Purchaser or its representative shall have the right to inspect and/ or test the Goods to confirm their conformity to the Contract. The technical specifications shall specify what inspections and tests the Purchaser requires.

3.8.2. The inspections and tests may be conducted on the premises of the Bidder, at point of delivery and/or at the Good's final destination. Where conducted on the premises of the Bidder, all reasonable facilities and assistance including access to drawings and production data-shall be furnished to the inspectors at no charge to the Purchaser. In case of any defects or deficiency notified by the Purchaser's inspection authority, the Bidder will rectify and make good the same without delay and not proceed with further processing of such item(s) of Goods without obtaining approval from the inspection authority.

3.8.3. Should any inspected or tested Goods fail to conform to the specifications, the Purchaser may reject them and the Bidder shall either replace the rejected Goods or make all alterations necessary to meet specification requirements free of cost to the Purchaser.

3.8.4. The Purchaser's right to inspect, test and, where necessary, reject the Goods after the Goods' arrival at the destination shall in no way be limited or waived by reason of the Goods having previously been inspected, tested, and passed by the Purchaser or its representative prior to the Goods shipment from the country of origin.

3.9. Packing and marking:

3.9.1. The Bidder shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination as indicated in the Contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to temperature, salt and precipitation during transit and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the Goods' final destination and the absence of heavy handling facilities at all points in transit. The Bidder will be responsible for internal damage if any, even if outwardly there is no damage to the package.

3.9.2. The packing, marking and documents within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract and, subject to Clause 3.18 and any subsequent instructions given by the Purchaser.

3.9.3. Each package shall be marked to indicate:

Name of the Bidder

Purchase Order number

Details of items in the package

Gross, net, and tare weights on the item

Name of the consignee Destination

Country of origin

3.9.4. The cost of the individual cases aggregating to the total machine cost shall have to be submitted to IDMC prior to dispatch. The Bidder will have to replace the respective item of the individual cases at the cost declared, in case of damage/loss etc. IDMC Limited shall not permit deviation from this clause. The Bidder finally executing the contract would be deemed to have accepted this clause.

3.10. Delivery and documents:

Upon shipment/ dispatch, the Bidder shall notify to the purchaser the full details of dispatch including purchaser order no., description of the goods, quantity, mode of transport, place of loading, date of dispatch, packing details with the individual costs etc. The Bidder will mail the following documents to the purchaser with a copy to the Insurance Company:

Original and two copies of:

The Bidder's invoice showing purchase order no. description of goods, quantity, unit price, total amount;

a. Delivery note/case-wise detailed packing list identifying contents of each package/ lorry Receipt/Bill of landing, individual case values (for replacement purposes, in case of damage) etc.

b. Manufacturer's/Bidder's warranty certificate;

c. Inspection Certificate issued by the nominated inspection agency, and the Bidder's Factory inspection report;

d. Certificate of origin;

e. Any other document evidencing payment of statutory levies;

f. The Bidder's certificate certifying that the defects pointed out during inspection have been rectified;

Note: The nomenclature used for the item description in the invoice/s, packing list/s and delivery note/s etc. should be identical to that used in the purchase order. The dispatch particulars including name of transporter, LR/BL no. and date should also be mentioned in the invoices.

3.11. Insurance

Bidders (Price basis shall be applicable as per Incoterm mentioned in clause no. 2 (m) - Instructions to bidders)

3.12. Transportation:

3.12.1. Transportation and insurance upto the site shall be in the scope of bidder.

3.13. Incidental services:

As specified in the Special Conditions of Contract, the Bidder will be required to provide any or all of the following services:

a. The bidder shall provide all the details/load for safe unloading of materials at project site.

b. Furnishing list of tools and tackles required for assembly and/or maintenance of the supplied goods; Any special tools required for assembly and installation shall be provided by the bidder

c. Furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied Goods; and manuals covering the operation and maintenance of automation software and control systems. The soft copy of manuals shall also be provided.

d. Performance or supervision or maintenance and/or repair of the supplied Goods, for a period agreed by the parties, provided that this service shall not relieve the Bidder of any warranty obligations under this Contract; and

e. Conduct 15 working days onsite /offsite training during installation and commissioning as per the requirement of the purchaser.

3.14. Spare parts: - Applicable as per technical specifications

Bidder shall also provide costing & breakup quantity of spares.

3.15. Warranty:

3.15.1. The Bidder warrants that the Goods and equipment, supplied, installed, and commissioned under the Contract are new, unused, of the most recent or current models and incorporate all recent improvements in design and materials unless provided otherwise in the Contract. The Bidder further warrants that the Goods supplied under this Contract shall have no defect arising from design, materials or workmanship (except insofar as the design or material is required by the Purchaser's Specifications) or from any act or omission of the Bidder, that may develop under normal use of the supplied Goods in the conditions obtaining in the country of final destination. The Bidder also guarantees that the Goods supplied shall perform satisfactorily as per the signed/rated/-installed capacity as provided for in the Contract.

3.15.2. The warranty period is 12 months after the date of successful commissioning, product trial & acceptance, and completion certificate duly signed by both parties or handover of the plant.

3.15.3. The Purchaser shall promptly notify the Bidder in writing of any claims arising under this warranty.

3.15.4. Upon receipt of such notice, the Bidder shall promptly respond and resolve the issue maximum within 7 working days from the date of notice by way of repair or replace the defective Goods or parts thereof, without costs to the Purchaser.

3.15.5. If the Bidder, having been notified, fails to remedy the defect(s) within a reasonable period mentioned in clause no 3.15.4, the Purchaser may proceed to take such remedial action as may be necessary, at the Bidder's risk and expense and without prejudice to any other rights which the Purchaser may have against the Bidder under the Contract.

3.16. Payment:

Payment for supply component:

3.16.1. 20% advance against submission of equivalent security in the form of Bank guarantee from a reputed bank with banker confirmation and shall valid till receipt of last consignment at purchaser site in acceptable condition.

3.16.2. 60% will be payable in 60 days against receipt of materials at site in acceptable condition.

3.16.3. The 10% will be payable in 30 days after successful installation of machine/equipment by acceptance of purchaser in writing.

3.16.4. Balance 10% will be payable in 30 days against final acceptance of satisfactory performance of the complete plant for uninterrupted running of 15 days continuously, on completion of other contracted services including training and acceptance by the purchaser in writing, within the scope of this contract and on submission of an equivalent amount of performance bank guarantee (PBG) valid for a period of 12 months from the date of successful commissioning, product trial & acceptance by the purchaser.

Payment for Installation, Testing, Commissioning, acceptance & Training:

3.16.5. 90% of the contract price against successful installation and commissioning shall be paid in 30 days on actual completion of installation/erection and approval by the purchaser (against detailed break up cost to be furnished by the Bidder in advance and accepted by the Purchaser)

3.16.6. On final acceptance:
The balance 10% shall be paid on continuous satisfactory running of the complete plant/equipment for one month, on completion of other contracted services and accepted by the purchaser's representative, within the scope of this contract.

Payment for Service Cover, Non-Comprehensive AMC & Comprehensive AMC:

3.16.7. 100 % shall be paid in 15 days against submission of visit report accepted by the purchaser's representative, within the scope of this contract.

Note:

1) All bank guarantees should be issued by a Nationalized/ class- I Indian/ Foreign Bank in the format provided in the bid.

3.16.8. The Bidder's request(s) for payment shall be made to the Purchaser in writing, accompanied by an invoice describing, as appropriate, the Goods delivered and Services performed, and by shipping documents, submitted pursuant to Clause 3.10, and fulfillment of other obligations stipulated in the Contract.

3.16.9. All payments under this contract shall be made in the currency in which the bid price was quoted.

3.17. Change orders:

3.17.1. The Purchaser may, at any time, by a written order given to the Bidder make changes within the general scope of the Contract in any one or more of the following:

a. Drawings, designs, or specifications, where Goods to be furnished under the Contract is to be specifically manufactured for the Purchaser:

b. The method of shipment or packing;

c. The Services to be provided by the Bidder.

3.17.2. If any such change causes a substantial increase or decrease in the cost of, or the time required for, the Bidder's performance of any part of the work under the Contract, whether changed or not changed by the order, an equitable adjustment shall be made in the Contract Price or delivery schedule, or both, and the Contract shall accordingly be amended. Any claims by the Bidder for adjustment under this clause must be asserted within sixty (60) days from the date of the Bidder's receipt of the Purchaser's change order.

3.18. Contract amendment:

Subject to Clause 3.17, no variation in or modification of the terms of the Contract shall be made except by written amendment signed by the parties.

3.19. Assignment:

The Bidder shall not assign, in whole or in part, its obligations to perform under the Contract, except with the Purchaser's prior written consent.

3.20. Liquidated damages:

If the Bidder fails to deliver any or all the goods or perform the services within the times period (s) specified in the Contract, the Purchaser shall, without prejudice to its other remedies under the Contract, deduct from the contract prices, as liquidated damages, a sum equivalent to:

(1) 0.5% of the full contract value for every completed week (week comprising of 7 days including holidays and any incomplete week shall be ignored for the calculations of liquidated damages) of delay in the supplies/commissioning.

(2) The total amount so deducted shall not exceed 7.5% of the Contract value. Once the maximum is reached, the Purchaser may consider termination of the contract pursuant to Force Majeure.

Any incremental taxes and levies on account of delay in performance of the Contract by the Bidder shall be to the Bidder's account.

3.21. Termination for default:

The contract can be terminated on the following grounds:

3.21.1. Bidders default:

3.21.1.1. If the Bidder shall assign the Contract, without the consent in writing of the Purchaser first obtained, or if in the opinion of the Purchaser, the Bidder:

a. Has abandoned the Contract, or

b. Without reasonable excuse has failed to commence the Works or has suspended the progress of the works for twenty-eight days after receiving from the purchaser written notice to proceed, or Despite previous warnings by the Purchaser, in writing, is not executing the works in accordance with the Contract or neglecting to carry out his obligations under the contract.

3.21.1.2. Consequent to such termination of Contract, the Purchaser shall also be entitled to recover the advance paid, if any, to the Bidder along with interest @ 18% per annum compounded quarterly on the last day of March, June, September and December on the advance paid for the entire period for which the advance was retained by the Bidder.

3.21.2. Default of the Purchaser

3.21.2.1. In the event of the Purchaser:

a. Becoming bankrupt or (being a company) going into liquidation other than for the purpose of a scheme of reconstruction or amalgamation, or

b. Being unable to continue to meet his contractual obligations for unforeseen reasons due to economic dislocation.

3.21.2.2. Nothing in this clause contained shall prejudice the right of the Bidder to exercise, either in lieu of or in addition to the rights and remedies in this Clause specified any other rights or remedies to which the Bidder may be entitled.

3.22. Force majeure:

3.22.1. Notwithstanding the provisions of Clauses 3.20, 3.21 the Bidder shall not be liable for forfeiture of its performance security, liquidated damages or termination for default, if and to the extent that, it's delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force majeure.

3.22.2. For purposes of this clause, "Force majeure" means an event beyond the control of the Bidder and not involving the Bidder's fault or negligence and not foreseeable. Such events may include, but are not restricted to, acts of the Purchaser either in its sovereign or contractual capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.

3.22.3. If a Force Majeure situation arises, the Bidder shall promptly notify the Purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Bidder shall continue to perform its obligations under the Contract as far as is reasonably practical and shall seek all reasonable alternative means for performance not prevented by the Force majeure event.

3.23. Inspection of goods during manufacturing at Bidder works/ operations:

The Purchaser and any person authorized by him shall have the right to inspect the physical progress at the site of the successful bidder, after providing reasonable and not less than three days' notice.

3.24. Time for completion shall mean the completion of performance of contract:

As given in clause 4.3 in the special conditions of contract.

3.25. Certification of completion of works:

The successful bidder shall obtain a certificate of completion from IDMC Limited at the time of complete plant hand over for the commercial production after successful commissioning and performance trial of the supplied plant and machinery and fulfilment of other obligations stipulated in the contract.

3.26. Resolution of disputes:

3.26.1. The Purchaser and the Bidder shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.

If, after thirty (30) days from the commencement of such informal negotiations, the Purchaser and the Bidder have been unable to resolve amicably a Contract dispute, either party may require that the dispute be referred for resolution to the formal mechanisms as specified in the special conditions of contract. These mechanisms may include but are not restricted to, conciliation mediated by a third party, adjudication in an agreed national or international forum, and/or international arbitration. The mechanism shall be specified in the Special conditions of the contract.

Applicable law:

The Contract shall be interpreted in accordance with the laws of the Union of India.

3.27. Notices:

3.27.1. Any notice given by one party to the other pursuant to the Contract shall be sent in writing to the address specified for that purpose in the Special Conditions of Contract.

3.27.2. A notice shall be effective when delivered or on the notice's effective date, whichever is later.

3.28. Right to use defective goods:

If after delivery, acceptance and installation and within the warranty period, the operation or use of the Goods proves to be unsatisfactory, the Purchaser shall have the right to continue to operate or use such Goods until rectifications of defects, errors, or omissions by repair or by partial or complete replacement are made without interfering with the Purchasers' operation.

3.29. Jurisdiction:

This invitation for bids is issued by IDMC Limited and on behalf of its head office situated at Anand (Gujarat). For the settlement of any dispute arising out of the contract against this bid, only the Courts at Anand, Gujarat, India shall have jurisdiction.

4. Special conditions of contract

4.1. General:

The following Special conditions of Contract shall supplement the General conditions of Contract, given in chapter 3. Wherever there is a conflict, the provisions herein shall prevail over those in the General conditions of Contract.

4.2. Taxes:

For bidders

The offer rates being as per price basis (Incoterm) mentioned in Instruction to Bidder. All the taxes and duties will be paid by the Purchaser. All payments will be made in the currency in which the Purchase order will be placed.

4.3. Time of completion:

The expected total time of completion of the Design, Engineering, Manufacturing, Supply, Installation, Testing, Commissioning, acceptance of 12 Nos. Multi-Fruit Environmentally Controlled Ripening Chambers (ECRCs) for Mango and Papaya, and 4 Nos. Ripening Chambers (RCs) for Banana and Mango is a period of 9 (Nine) months from the issue of the purchase order to successful commissioning and handover to purchaser.

4.4. Drawings/ specification:

The bidder shall furnish a standard Plant layout drawing along with the bid.

4.5. Safety regulations & compliance:

The successful bidder has to follow all the safety requirements during the unloading, erection, testing and commissioning as per the standard safety laws, compliances and as per the guideline of IDMC.

4.6. Office space at site:

IDMC Limited shall provide office space at the site location to the personnel of the Bidder during erection and commissioning period.

4.7. Installation, start up, commissioning and trial runs:

As per attached technical specifications.

4.8. Rating:

As per attached technical specifications

4.9. Instruction Manual:

As per attached technical specifications

4.10. Resolution of Disputes (Clause 3.26 of General Conditions of Contract):

In the event of any dispute in the interpretation of the terms of the order/contract or difference of opinion between the parties on any point in the order/contract arising out of or in connection with the agreement accepted order/contract or with regard to the performance of any obligation hereunder by either party, the parties hereto shall use their best efforts to settle such disputes or difference of opinion amicably by mutual negotiations. In case no agreement is reached, either party may forthwith give to the other, a notice in writing of the existence of such question, dispute, or difference of opinion, and the same shall be referred to the adjudication of a sole arbitrator to be appointed by IDMC whose decision in the matter shall be final and binding on the parties.

The arbitration proceedings shall be governed under the provisions of the Indian Arbitration and Conciliation act, 1996, and the rules there under or any statutory modifications thereof for the time being in force. In the order/contract, the venue of such Arbitration shall be Anand, Gujarat and the Courts of Anand alone shall have jurisdiction regarding any matter arising out of the order/contract.

4.11. Rights reserved by IDMC Limited:

IDMC Limited at its sole discretion and without assigning any reason thereof reserves the right to accept and/ or reject any or all the bids. Further it shall be the prerogative of IDMC Limited to revise/ modify the qualifying criteria specified in the invitation to bid without assigning any reasons whatsoever.

4.12. Limitation of Liability:

Notwithstanding anything to the contrary herein, Bidders' s entire liability for claim, whether based on contract, warranty (except warranty of title), tort (including negligence), strict liability, or otherwise for any loss arising out of its performance or failure to perform this contract shall:

(A) not exceed the contract price of the equivalent supplied plant and machinery hereunder which was the cause of such claim:

(B) in no case extend to direct, indirect special incidental, or consequential damages, of any nature or kind, including, without limitation, lost profits, lost production, lost revenues, or lost business opportunities; and

(C) termination upon expiration of the warranty period.

5. Form of Bid

Enquiry Reference No	:	IDMC/ Sourcing & VD/ 2026-27/ Enquiry/ 403 dated 19.11.2026
Name and address of Purchaser	:	IDMC Limited, 124-128, GIDC Estate, Vithal Udyognagar- 388121, Anand District, Gujarat, India, Tel: +91-2692-220521

Gentlemen:

Having examined the Conditions of Contract, Technical Specifications and the Drawings included in or referred to in the Bidding Documents including Addenda Nos. (Insert Numbers), the receipt of which is hereby duly acknowledged, we, the undersigned, offer to supply and deliver Goods and Services including installation and commissioning as detailed in the price bid, in conformity with technical specifications and drawings (except to the extent of deviation statement furnished in our bid) and the Conditions of Contract as mentioned in or referred to in the said Bidding Document for the sum as may be ascertained in accordance with the Bid Prices and made part of this bid and the said conditions.

Our acceptance to all the conditions of the Bidding Document in this bid form shall persist over any other terms and conditions, if any, given in our bid.

We undertake, if our bid is accepted, to commence and complete delivery of all the goods and Services including installation and commissioning as specified in the Schedule of Quantities of the Bid Document, from the date of receipt of your Purchase Order.

If our bid is accepted, we will obtain the bank guarantees as per the conditions of the Contract for the due performance of the Contract.

We agree to abide by this bid for the period of 120 days from the date fixed for bid opening as per the Instruction to Bidders and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

Until a formal contract is prepared and executed, this bid, together with your written acceptance thereof and your Purchase Order/notification of award, shall constitute a binding Contract between us.

We understand that you are not bound to accept the lowest or any bid you may receive.

Dated this _____ day of _____ 2026.

_____

Signature

_____
(In the Capacity of)
Duly authorized to sign bid for and on behalf of

(Name & Address of Bidder): _____
_____

Name of Witness: _____

Signature: _____ Address: _____

BIDDING TERMS DEVIATION STATEMENT FORM

The following are the particulars of deviations from the requirements of the bidding conditions/ terms:

CLAUSE	DEVIATION	REMARKS (INCLUDING JUSTIFICATION)

The terms and conditions prescribed in the bidding document shall prevail over those of any other document forming a part of our bid, except only to the extent of deviations furnished in this statement.

Dated: Signature and Seal of Bidder
Place:

Note :-

Where there is no deviation, the statement should be returned duly signed with an endorsement indicating “NO DEVIATIONS”.

TECHNICAL DEVIATION STATEMENT FORM

The following are the particulars of deviations from the requirements of the bidding conditions/ terms:

CLAUSE	DEVIATION	REMARKS (INCLUDING JUSTIFICATION)

All the bidders to submit their bids as per the scope of supply mentioned in the technical specifications in totality and no any deviation shall be considered in the scope of supply.

The terms and conditions prescribed in the bidding document shall prevail over those of any other document forming a part of our bid, except only to the extent of deviations furnished in this statement.

Dated: Signature and Seal of Bidder
Place:

Note :-

Where there is no deviation, the statement should be returned duly signed with an endorsement indicating “NO DEVIATIONS”.

6. Acceptable forms of Bank Guarantees

Bank Guarantee to secure performance

Currency: INR / EURO / USD / ETC..	Amount in figures		
Amount in words			
Date of execution		Date up to when in force/ Date of expiry	
Date of Claim/ Demand (up to 45 days beyond the date of expiry)			
Name and address of beneficiary	IDMC Limited, Plot no. 124-128, GIDC Estate, Vithal Udyognagar, District Anand, Gujarat -388121		
Name and address of the vendor and/ or service provider (i.e. purchaser of the bank guarantee from the bank)			

THIS deed of guarantee made on this_____day of_____, between _____(name of the bank issuing this guarantee), herein after called 'the bank', on the first part and_____ (hereinafter referred to as 'vendor and/ or service provider in relation to IDMC Limited' and 'purchaser in relation to the bank' respectively) on the second part.

WHEREAS, the purchaser of the bank guarantee has been engaged by IDMC Limited as a vendor and/ or service provider for_____(e.g. design, manufacture, and supply of equipment or installation/ testing/ commissioning/ job work/ preventive maintenance/ break-down maintenance/ consulting or advising services as envisaged in the purchase order(s)/ contract(s)_____dated _____) which is required to be performed in pursuance of the said purchase order(s)/ contract(s);

WHEREAS, the vendor and/ or service provider is required to submit this bank guarantee for a sum of Rs._____(Rupees_____only) as security for fulfilling its obligation to secure performance of the____(description of goods and/ or services) under the said purchase order(s)/ contract(s).

AND WHEREAS, at the request of the vendor and/ or service provider, the bank has agreed to guarantee the refund of the said amount in case the aforesaid goods and/ or services do not perform to the satisfaction of IDMC Limited as per the terms and conditions of the said purchase order(s)/ contract(s).

NOW THIS DEED OF GUARANTEE DOES WITNESSETH AS UNDER:

1. That in consideration of IDMC Limited having awarded the said purchase order(s)/ contract(s), the bank does hereby irrevocably guarantee and indemnify that if the vendor and/ or service provider has supplied and/ or provided___ _____(description of goods and/ or services), which is not to the satisfaction of IDMC Limited, as per the details, terms and conditions contained in the said purchase order(s)/ contract(s), *supra*, the Bank shall, without demur, repay and indemnify IDMC Limited within seven (7) working days as the bank may be called upon to pay subject to a ceiling of Rs._____(Rupees_____);

2. We,___(name of the bank), further agree that this performance guarantee will remain in full force and effect up to_____by which duration IDMC

   Limited believes it may be reasonable to certify that the defect liability period has been successfully completed as per the details contained in the purchase order(s)/ contract(s),supra.

3. That the bank shall not question any of the details, terms and conditions contained in the said purchase order(s)/ contract(s), *supra*, including but not limited to the amount of consideration agreed upon between IDMC Limited and the vendor and/ or service provider for the purposes of determining its acceptance of liabilities under this bank guarantee and forthwith accept the demand of IDMC Limited to determine this bank guarantee.

4. That at the written request of either IDMC Limited or the vendor and/ or service provider, the bank shall renew this bank guarantee before it's date of expiry.

5. The Bank agrees that the amount hereby guaranteed shall be immediately due and payable to IDMC upon serving the bank with a notice before the date of expiry or date of claim/ demand, whichever is earlier. The claim can be lodged by IDMC Limited up to 45 days beyond the date of expiry or extended date of expiry.

6. This Bank Guarantee shall be subject to the law as applicable in India.

7. "In the event of invocation, the details to be sent to the branch address with branch email id _____ Marking a copy to our back-office email id _____."

8. Notwithstanding anything stated herein before:

   (i) The Bank's liability under this guarantee is restricted to Rs.

_____/-(Rupees_____only);

(ii) This guarantee shall remain in force till_____and;

(iii) The Bank is liable to pay the guaranteed amount or any part thereof under this bank guarantee only if IDMC Limited serves upon the Bank a written claim/ demand on or before_____(Date of Claim/ Demand) including 45 days of grace period from the date of expiry.

IN WITNESS WHEREOF, the bank has signed on this_____day of_____,2026.

Signature of Bank Manager

Bank Guarantee for advance payment

Currency: INR / EURO / USD / ETC..	Amount in figures		
Amount in words			
Date of execution		Date up to when in force/ Date of expiry	
Date of Claim/ Demand (up to 45 days beyond the date of expiry)			
Name and address of beneficiary	IDMC Limited, Plot no. 124-128, GIDC Estate, Vithal Udyognagar, District Anand, Gujarat -388121		
Name and address of the vendor and/ or service provider (i.e. purchaser of the bank guarantee from the bank)			

THIS deed of guarantee made on this_____ day of_____,between _____(name of the bank issuing this guarantee), herein after called 'the bank', on the first part and_____ (hereinafter referred to as 'vendor and/ or service provider in relation to IDMC Limited' and 'purchaser in relation to the bank' respectively) on the second part.

WHEREAS, the purchaser of the bank guarantee has been engaged by IDMC Limited as a vendor and/ or service provider for_____(e.g. design, manufacture and supply of equipment or installation/ testing/ commissioning/ job work/ preventive maintenance/ break-down maintenance/ consulting or advising services as envisaged in purchase order(s)/ contract(s)_ dated _____) which is required to be supplied/ provided latest by _____(dd/mm/yyYY) in pursuance of the said purchase order(s)/ contract(s)

WHEREAS, IDMC Limited is required to pay the vendor and/ or service provider a sum of Rs. _____ (Rupees_____only) against submission of this bank guarantee towards part value of_____(description of goods and/ or services) ordered to be manufactured/ supplied/ provided under the said purchase order(s)/ contract(s);

AND WHEREAS, at the request of the vendor and/ or service provider, the bank has agreed to guarantee the refund of the said amount, in case the aforesaid goods and/

or services do not deliver to the satisfaction of IDMC Limited as per the terms and conditions of the said purchase order(s)/ contract(s).

NOW THIS DEED OF GUARANTEE DOES WITNESSETH AS UNDER:

1. That in consideration of IDMC Limited having agreed to pay an advance of Rs. ___ (Rupees_____) to the vendor, the bank does hereby irrevocably guarantee and indemnify that if the vendor and/ or service provider fails to supply/provide to IDMC Limited the goods and/ or services as per the details, terms, and conditions contained in the said purchase order(s)/ contract(s), *supra*, the Bank shall, without demur, repay and indemnify IDMC Limited within seven (7) working days all such advances paid by IDMC Limited to the vendor and/ or service provider as the bank may be called upon to pay subject to a ceiling of Rs._____(Rupees_____);

2. That the guarantee furnished herein shall be realized and discharged the moment the vendor and/ or service provider supplies/ provides the equipment to the satisfaction of IDMC Limited, as per the details, terms and conditions contained in the said purchase order(s)/ contract(s);

3. That the bank shall not question any of the details, terms and conditions contained in the said purchase order(s)/ contract(s), *supra*, including but not limited to the amount of consideration agreed upon between IDMC Limited and the vendor and/ or service provider for the purposes of determining its acceptance of liabilities under this bank guarantee and forthwith accept the demand of IDMC Limited to determine this bank guarantee.

4. That at the written request of either IDMC Limited or the vendor and/ or service provider, the bank shall renew this bank guarantee before it's date of expiry.

5. That the Bank agrees that the amount hereby guaranteed shall be immediately due and payable to IDMC on serving the bank with a notice before the date of expiry or date of claim/ demand, whichever is earlier. The claim can be lodged by IDMC limited up to 45 days beyond the date of expiry or extended date of expiry.

6. This Bank Guarantee shall be subject to the law as applicable in India.

7. "In the event of invocation, the details to be sent to the branch address with branch email id _____ Marking a copy to our back-office email id _____."

8. Notwithstanding anything stated herein before:

   a. The Bank's liability under this guarantee is restricted to Rs.

_____/-(Rupees_____only);

b. This guarantee shall remain in force till_____and;

c. The Bank is liable to pay the guaranteed amount or any part thereof under this bank guarantee only if IDMC Limited serves upon the Bank a written claim/ demand on or before_____(Date of Claim/ Demand) including 45 days of grace period from date of expiry.

IN WITNESS WHEREOF, the bank has signed on this_____day of_____, 2026.

Signature of Bank Manager

7. Schedule of Requirement

Design, Engineering, Manufacturing, Supply, Installation, Testing, Commissioning, and Acceptance
of
12 Nos. Multi-Fruit Environmentally Controlled Ripening Chambers (ECRCs) for Mango and Papaya, and 4 Nos. Ripening Chambers (RCs) for Banana and Mango

Schedule of Requirement:

Pack No.	Description	Quantity	Completion period
1	Design, Engineering, Manufacturing, Supply, Installation, Testing, Commissioning & Acceptance of Multi-fruit ECRC System for Comprising 12 chamber for Mango & Papaya ripening and 4 chamber for Banana & Mango Ripening fruits including all allied equipment, electrical systems, automation, structural works, and comprehensive services such as Project Engineering & Management, Training, and AMC as per the technical specifications on single source responsibility basis at MDFVPL Project, Kuppam, Andhra Pradesh, India	1 Pack	**9 Months**

Note: Bidders must quote their prices for each item as mentioned in the broad schedule of quantity.

Schedule of Quantity:

The Multi-fruit ECRC System shall be supplied completely with all standard mountings, accessories, and tools necessary for safe and efficient operation, fully complying with the latest applicable codes and statutory regulations. The Multi-fruit ECRC System shall include all components specified herein.

It shall be the sole responsibility of the successful bidder to supply any components or items not explicitly mentioned in this specification or in their offer, if such components are required for compliance with statutory or regulatory provisions and process smooth operation. These additional components/items shall be deemed included within the bidder's scope of work, and no additional cost shall be entertained for the same.

The bidder shall, however, clearly identify in their offer any components or items not listed in this specification but considered necessary for safe, reliable, and efficient operation in accordance with the latest regulations. Prices for such additional components/items, if applicable, shall be furnished separately on an item-wise basis

The general technical specifications of the major components and the ancillary items described in the technical section and the equipment, its capacities and quantity proposed by the Purchaser is furnished in the design requirement and schedule of quantities are for the guidance of the supplier only. However, the Bidder has to get themselves familiarized/acquainted about the nature and the quantum of work involved and submit their offer without deviation in the basic configuration of the plant.

Bidder must agree to undertake the complete work and there is no exclusion whatsoever of any PART. It shall be understood that any minor work, which may not have been explicitly detailed but is necessary for the proper functioning of individual equipment or the plant as a whole, is included in the scope of work without any additional cost.

Multi-Fruit Environmentally Controlled Ripening Chamber (ECRC) & Ripening Chamber (RC) for Controlled Ripening

Technical Details Serial No.	Description	Quantity
1	Fruit Ripening System For ECRC Chamber (For 12 Chambers)	12 SET
2	Fruit Ripening System For RC Chamber (For 4 Chambers)	4 SET
3	Electrical system for ECRC & RC	1 Set
4	Spears for 2 year operation ECRC & RC	1 Set
5	Installation, Testing, Commissioning, acceptance & Training	1 Job
6	Non-Comprehensive AMC (minimum 4 Visits per annum & unlimited breakdown after warranty period) for 2 year	8 Visit
7	Comprehensive AMC (minimum 4 Visits per annum & unlimited breakdown after warranty period) for 2 year	8 Visit

Note: The above-mentioned Quantities are tentative and subject to confirmation during the detailed process review and may vary from the final scope.

8. Technical Specifications

Design, Engineering, Manufacturing, Supply, Installation, Testing, Commissioning, and Acceptance of 12 Nos. Multi-Fruit Environmentally Controlled Ripening Chambers (ECRCs) for Mango and Papaya, and 4 Nos. Ripening Chambers (RCs) for Banana and Mango

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I. DELIVERY & TIMELINE

A. INTRODUCTION

IDMC Limited is setting up a "Multi-fruit processing plant capable of converting fruits such as Banana, Mango, Papaya ,Tomato & Guava into their respective shelf-stable products including pulps, purees, pastes, and concentrates" on behalf of the MDFVPL (Mother Dairy Fruit & Vegetable Private Limited) for their Kuppam, Andhra Pradesh.

In order to facilitate the controlled and hygienic ripening of fruits prior to processing, it is proposed to install an Environment Controlled Ripening Chamber for Mango, Papaya and Ripening chamber for Banana equipped with temperature, humidity, and ventilation control systems to achieve uniform ripening and maintain fruit quality.

B. PROJECT SITE DETAILS

Site Location : MDFVPL Project, Kuppam
District : Chittoor
State : Andhra Pradesh, India
Nearest Airport : Bengaluru
Operation : 24 Hrs

	Summer	Monsoon	Winter
Ambient Dry Bulb Temperature in Deg.C	45	31.4	10.8
Ambient Wet Bulb Temperature in Deg.C	35	25.1	9.2

Tropicalization - All equipment / system / sub-system / instruments/ control system should be fully tropicalized in view of the hot and humid weather conditions prevailing at this site.

C. SCOPE OF WORK

It shall be understood that this is a complete job on single source responsibility basis. The scope of this contract shall include, but not limited to designing, manufacturing, supply, installation, testing and commissioning the complete System and allied equipment.

Schedule of major items and components of the proposed plant are broadly described under technical specification.

Any items not explicitly mentioned in the specifications/scope of the work but required for completion of supply, proper functioning and satisfactory performance of the system is included in the scope of work and shall be provided by the bidder without any extra claim.

The scope of work specifically includes the following:

- The scope of work shall be on a turnkey basis, covering design, supply, installation, testing, and commissioning of all related equipment, piping, electrical systems, instrumentation, automation, and structural works.
- The bidder must undertake the job in its entirety without exclusions. Any minor works not explicitly detailed but necessary for the proper functioning of the ECRC System, or for achieving high-quality and efficient output, shall be deemed included at no additional cost.
- The bidder shall plan and execute the design, layout, selection of technology, and methodology of plant execution with full knowledge of efficient operations.
- Process flow diagrams, time schedules, mass flow diagrams, P&IDs, operating parameters, equipment details, and layouts shall be submitted by the bidder based on the offered system.
- The bidder shall furnish the complete requirement of utilities such as raw water, RO water, chilled water, hot water, steam, refrigerant, compressed air, oil and electrical power.
- The raw product shall be provided by the purchaser.
- General specifications of major components and ancillary items are described in the technical section. Capacities and quantities provided by the purchaser are indicative for comparison.
- It shall be assumed that the bidder is fully familiar with the nature of the product and the scope of work, and therefore shall not deviate from the basic design, functional requirements, or configuration of the plant
- The bidder shall be responsible for the proper positioning of the system and associated equipment on foundations, as well as all connections for piping, electrical systems, and earthing.
- Fruits, water, and power will be made available at the battery limit by the purchaser.

- The final packed product shall meet all applicable Indian food safety and quality standards.
- **All equipment shall be designed, engineered, supplied, and installed in accordance with prevailing international standards, including EHEDG or 3A sanitary Standards/USDA /FDA for smooth exporting of products and in compliance with ISO, HACCP, GMP, FSMS, and statutory Indian food and industrial safety regulations.**
- All Process equipment which has direct Food Contact shall be fabricated in stainless steel AISI 304/316 as per process & design requirement unless otherwise specified.
- The bidder shall ensure satisfactory performance and provide after-sales service and support for all bought-out items.
- The bidder shall impart comprehensive training to plant personnel on the operation and maintenance of the equipment.
- After commissioning, the bidder shall submit Access to PLC program, Detailed BOQ and consumable list, dead load, Normal Load and catastrophic load, as-built P&IDs, equipment layout drawings, SOPs for operation and maintenance, safety instructions, and Do's & Don'ts.
- The bidder shall submit a detailed preventive maintenance schedule and complete operating manuals at least two weeks before the start of commissioning.
- The bidder shall submit the "layout, GA Drawings, Process Flow Diagram (with flow, temperature and other parameters), product drawing, P & ID, Equipment/ instrument/electrical Data sheet, Automation architecture, details of electrical panel and cable, and a tentative schedule/Gantt chart/ L1 Schedule and a comprehensive list of all spare parts and special tools required for two years of continuous functioning" at the time of submitting offer.
- The manuals shall include:
    - Procedures for system start-up, commissioning, normal operation, and emergency operation.
    - Troubleshooting charts indicating operational issues, possible causes, and corrective actions.
    - As-built equipment drawings, electrical schematics, control wiring diagrams, and executed P&IDs.
- Manuals and drawings are to be supplied as follows:
    - 1 Sets of drawings and manuals in hard copy
    - 1 Sets of drawings and manuals in Pen Drive (softcopy – PDF Format)
    - 1 Sets of drawings in Pen Drive (softcopy - AutoCAD Format)

D. DESIGN REQUIREMENT

The fully automatic Environment Controlled Ripening Chamber (ECRC) system comprising 12 ECRC chambers for Mango &Papaya ripening and 4 RC chambers for Banana Ripening shall be provided for controlled and uniform ripening of Banana, Mango & Papaya prior to processing into shelf-stable products such as pulps, purees, pastes, and concentrates.

Chamber No.	Room Dimensions			Crate Dimensions (± 5 mm)			Product	Capacity (MT)
	Length	Width	Total Height (Floor to Ceiling in MM)	Length	Width	Height		with 25% free space
	(MM)	(MM)		(MM)	(MM)	(MM)		
1	21040	16370	4000	542	360	300	Mango/Papaya	210
2	21040	16370	4000	542	360	300	Mango/Papaya	210
3	21040	16370	4000	542	360	300	Mango/Papaya	210
4	21040	16370	4000	542	360	300	Mango/Papaya	210
5	21040	16370	4000	542	360	300	Mango/Papaya	210
6	21040	16370	4000	542	360	300	Mango/Papaya	210
7	21040	16370	4000	542	360	300	Mango/Papaya	210
8	21040	16370	4000	542	360	300	Mango/Papaya	210
9	21040	16370	4000	542	360	300	Mango/Papaya	210
10	21040	16370	4000	542	360	300	Mango/Papaya	210
11	21040	16370	4000	542	360	300	Mango/Papaya	210
12	21040	16370	4000	542	360	300	Mango/Papaya	210
13	21040	16370	4000	542	360	300	Banana / Mango	170 / 210
14	21040	16370	4000	542	360	300	Banana / Mango	170 / 210
15	21040	16370	4000	542	360	300	Banana / Mango	170 / 210
16	21040	16370	4000	542	360	300	Banana /Mango	170 / 210

Dimensions and requirement as listed below:

- For more information please refer the ECRC building layout.

Civil & PUF Panel Works: Complete PUF panel, flooring, foundation and other chamber civil works shall be under the Purchaser's scope.

Note: The heat exchange system for the Ripening Chambers (RCs) and the air exchange system, including exhaust fans, for the Environmentally Controlled Ripening Chambers (ECRCs) shall be designed for the following capacities:
Banana: 200 MT per chamber
Mango: 220 MT per chamber

Details of Equipment:

1. Fruit Ripening System For ECRC Chamber (12 Set for Mango & Papaya)

❖ **Box Type Exhaust Fan:**

- **General Information**

The box type exhaust fan system shall provide effective ventilation and controlled air movement within the Environmentally Controlled Ripening Chambers (12 ECRC Chamber) to maintain uniform ripening conditions by facilitating air circulation and the removal of excess heat, carbon dioxide, and excess ethylene gas
Fruit Type: Mango & Papaya
Air Handling Capacity: Supplier to confirm

- **Design Requirement:**

Exhaust fan quantity for each chamber: 4 Nos. each
Exhaust fan blade MOC : SS304
Exhaust fan size : As per Design Requirement
GI Shutter with counterweight operated Automatic: Shutters 10-12 Nos. as per design requirement
Exhaust Fan Blades quantity : Minimum 6 Nos.
Each Fan Air delivery capacity : CFM 26000 @ 0 Static Pressure
Each Blades Rotational speed : Blade rotation – 440 rpm

- **Drive & Electrical**

Drive : Belt Drive
Power Supply : 415 V ±10%, 3 Phase, 50 Hz IE-3
Protection Class : IP 55
Fan Motor HP : Minimum 1.5 HP
Fan Motor Rotational speed: Supplier to confirm
All rotating parts shall be provided with safety guards.

- **Scope of Supply**

Exhaust Fan System with all required accessories, safety guards, and protective covers.
All cables & Cable tray as per layout and site requirements.

❖ Ripening Air Circulation System:

- **General Information**

The ripening air circulation system shall provide uniform air movement and homogeneous distribution of ethylene gas throughout the Environmentally Controlled Ripening Chambers (12 No's ECRC Chamber) ensuring consistent temperature and humidity conditions across the entire chamber.

The system shall eliminate hot and cold spots, promote adequate airflow around fruit pallets, and maintain a controlled ripening environment for mango, and papaya. Thereby ensuring uniform, consistent, and controlled ripening throughout the ripening cycle.
Fruit Type: Mango & Papaya

- **Design Requirement**

Air Circulation Fan Quantity: 4 Nos. each Chamber
Air circulation Fan Body MOC: SS 304
Fan Blades quantity : min. 6 Nos. of blades
Fan Blades Diameter : To match CFM
Air volume : min. 8900 CFM

- **Scope of Supply**

Ripening air circulation system with all the required accessories and hanging provision.

❖ Evaporative cooling pads:

- **General Information**

The evaporative cooling pad system shall cool and humidify the incoming fresh air before it enters the Environmentally Controlled Ripening Chambers (12 No's ECRC Chamber) The system shall reduce the temperature of incoming air through evaporative cooling and increase its humidity level, working in conjunction with the exhaust fan system to provide a continuous supply of cooled and humidified air. This shall ensure uniform environmental conditions, minimize fruit moisture loss, and support consistent and controlled ripening throughout the chamber.

- **Design Requirement**

Size: Complete each Chamber Size as per layout requirement per chamber with minimum 150 mm thickness – [Indicatively approx. 2000 mm (H) x 600 (W) x 150 (T) actual as per layout needs.]

Width for each chamber : 16 Mtr. (approx. 28 Pads per Chamber)
Paper GSM : minimum 105 GSM (including resin coating)
Resin Coating thickness : minimum 10 GSM
Paper Type : Nordic Cellulose Paper with Excellent wetting Properties
Flute angel : 7090 types
With proper gluing and proper resin content, better hardness.

- **Scope of Supply**

Evaporative Cooling Pad System comprising cooling pads and all the required accessories.

❖ Water Distribution System:

- **Functional Requirement**

The Water Distribution System ensures that water is supplied uniformly over the entire cellulose pad surface so that the pad remains continuously wet and provides effective cooling.

- **Design Requirement**

The water distribution system shall be designed to provide uniform and continuous wetting of the entire cellulose cooling pad surface for efficient evaporative cooling. The system shall comprise PVC inlet and outlet piping, water distribution header, collection trough, recirculation pump, screen filter, float valve, ball valves, and all necessary fittings and accessories.

- **Scope of Supply**

Water circulation system complete with inlet and outlet PVC piping, screen filters, and float ball valves.

❖ Water Pumps of cooling pads:

- **Functional Requirement**

The cooling pad water circulation system shall continuously supply and distribute water uniformly over the entire cooling pad surface to keep the pads adequately wet during operation. The system shall support efficient evaporative cooling and humidity control inside the ripening chamber, ensuring uniform environmental conditions for proper fruit ripening. It shall provide reliable water recirculation, automatic water level maintenance, uninterrupted operation, and easy maintenance while preventing dry spots on the cooling pads and ensuring consistent system performance.

- **Design Requirement**

Distribution Piping MOC : uPVC (Heavy Duty industrial grade with min. 2 mm thickness)
Water storage tank quantity: 6 Nos (Proposed Common tank between 2 chambers/No. can be changed as per layout and performance need)
Water storage tank capacity: 5 KL each (600 mm Width, Length & Height as per capacity requirement and site suitability, 300 mm Bottom Clearance)
Feed Pump type : Monobloc Pump type
Feed Pump Qty : 12 Nos. (1 for each chamber)
Motor Pump standard : ISI Standard
Motor Pump HP : Min 2 HP
Motor rating : Supplier to confirm (ISI Standard)
Distribution Piping along with all required valves &Fittings.
Flow control valve/mechanism for each Pump (per chamber) to be provided.

- **Drive & Electrical**

Drive : Supplier to confirm
Power Supply : 415 V ±10%, 3 Phase, 50 Hz IE-3
Protection Class: IP55
Motor rating : OEM to confirm

- **Scope of Supply**

The feed water system shall comprise suitable water pumps, a water storage tank, and water distribution piping along with all required valves and fittings for smooth functioning of the system. Suitable arrangements shall be provided to ensure uniform and continuous distribution of water over the cooling pads. Including motor pumps, electrical wiring, and all associated accessories required for complete operation of the system.

❖ Drain Water collection system:

- **Design & Functional Requirement:**

The system shall collect excess water from the evaporative cooling pads and return it to the water storage tank by gravity through a suitable strainer/filter for reuse. The scope shall include PVC drain piping, fittings, supports, strainers/filters, and all necessary accessories to ensure efficient water collection, filtration, and smooth drainage without leakage or water stagnation.

Piping MOC : uPVC
Fittings and accessories MOC: Supplier to confirm
Collection Tank Capacity : min.5 KL
Collection Tank MOC : SS 304
Filter/Strainer type : screen filter systems and float valve ball valve etc.

Water Drain facility with valve at bottom, Suitable no. of manhole(s) required for cleaning of tank with lids having Hinge Covers.

- **Scope of supply:**

The supplier shall provide the complete system including drain piping, fittings, strainers/filters, supports, valves, and all required accessories from the drainage collection point up to the storage tank for proper and reliable operation.

❖ Air Tightening Curtains

- **Functional Requirement**

The Air Tightening Curtain System shall provide an effective anti-leakage barrier for exhaust fan and cooling pad openings during the ethylene gas dosing and ripening process, ensuring an air-tight ECRC chamber and minimizing gas loss. The system shall consist of durable cross-laminated/extruded HDPE curtains with Velcro hook-and-loop fixing arrangement, designed for quick closing and reopening with minimum effort and time. The complete arrangement shall be robust, simple to operate, reusable, and suitable for repeated use under ripening chamber operating conditions.

- **Design Requirement**

The Air Tightening Curtain System shall provide an effective anti-leakage barrier for exhaust fan and cooling pad openings during the ethylene gas dosing and ripening process, ensuring an air-tight ECRC chamber and minimizing gas loss.
Curtains MOC: Cross laminated /Extruded HDPE Curtains
Curtains Type: : Anti-Leakage Protection with Velcro

Hook & Loop type fixing Arrangement.

Note: Note: Any innovative/advance system can be quoted as an optional cost with detailed techno-commercial offer for selection during technical discussion.

- **Scope of Supply**

Supply of air-tightening curtains complete with all necessary mounting arrangements, supports, fittings, and accessories required to effectively prevent the loss of humidity, temperature, and ripening gases from the ECRC chamber during operation.

❖ Extruded Aluminium Frame:

- **Functional Requirement**:

The evaporative cooling pad frame assembly shall securely support the cooling pad media and facilitate uniform water distribution over the entire pad surface for efficient evaporative cooling. The frame shall provide easy access for installation, inspection, cleaning, and maintenance of the cooling pads. The system shall include provisions for effective collection and drainage of excess water through the outlet connection, ensuring continuous recirculation, minimum water loss, and reliable long-term operation.

- **Design requirement:**

Anodized extruded aluminium frame designed for easy installation and maintenance, complete with top, bottom, and side channels, water spray pipes, water outlet with tail pipe, and all required accessories and fittings for complete installation and operation.

❖ Automatic Temp, Humidity system:

- **Functional Requirement:**

The system shall automatically monitor and control temperature, humidity, and ethylene concentration within the chamber to maintain predefined set points, ensuring consistent product quality, operational efficiency, and reliable process performance. The system shall provide continuous data logging, alarm management, remote monitoring, and control through cloud-based connectivity.

- **Scope of Supply**

Supply of a complete automatic temperature, humidity, and ethylene control system integrated with the main chamber control system, including temperature sensors, humidity sensors, ethylene sensors, main controller, data logger, HMI/display interface, communication modules, remote monitoring and control system, internet cloud connectivity, alarm and event management system, and all required accessories necessary for complete monitoring, control, and data management of the chamber.

❖ **Sensors:**

Functional &Design Requirement

Application: To monitor Temperature, humidity and gases inside ECRC Chamber.
Range : 0 to 100 d C for Temperature
0 to 100 Rh for Humidity
20 to 2000 PPM for ethylene gas

The sensing system shall be suitable for continuous monitoring of environmental conditions inside the ECRC chamber and shall provide accurate and reliable measurement of Temperature, Relative Humidity, Ethylene (C_2H_4) concentration, and CO_2 concentration for effective monitoring and control of the ripening process.

The sensing system shall be suitable for integration with the plant control/automation system. The required power supply and signal output shall be compatible with the control system and shall be confirmed by the Supplier.

Power Supply: 24 VDC, AO: 4-20 mA/2-10 VDC,
Output Signal: 2 to 20 mA Outputs
Sensor Make: GAS Alarm Australia (Co2 sensor) MSR Germany (Ethylene sensor),
Sensor Model No.: Supplier to confirm
Measurement Range: 20-2000 ppm, Sensor Cell: Semiconductor
Accuracy: Supplier to confirm
Calibration Period: Supplier to confirm
Response Time: Supplier to confirm

- **Scope of Supply**

Supply of Temperature, Relative Humidity, Ethylene (C_2H_4), and CO_2 sensors complete with sensor housings, mounting accessories, signal transmitters,

interconnecting cables, power supply requirements, and all necessary hardware for integration with the ECRC chamber control monitoring system.

❖ Automatic Fruit Ripening System (Ethylene Dosing):

- **Functional & Design Requirement**

The Automatic Fruit Ripening System shall provide controlled and uniform fruit ripening by automatically maintaining the required ethylene gas concentration, temperature, humidity, and CO_2 levels inside the ECRC chamber. The system shall be PLC-based and equipped with Temperature, Relative Humidity, Ethylene Gas, and CO_2 sensors for continuous monitoring and control. The PLC controller shall regulate ethylene gas dosing on both PPM and timer-based logic to maintain the desired ethylene concentration within the range. Ensuring safe, efficient, and consistent ripening conditions. The system shall include monitoring, alarms, interlocks, data logging, and automatic operation to achieve reliable chamber performance with minimal operator intervention.

- **Scope Of Supply**

Complete Automatic Fruit Ripening System for Mango & Papaya, including Temperature, Humidity, Ethylene Concentration, and CO_2 Sensors with Automatic PLC-Based Control System.

❖ Auto Ventilation Motorized Damper (CO2 or Other gases removal):

- **Design Requirement**:

The automatic ventilation system shall consist of motorized dampers installed in the fresh air and exhaust air ducts for automatic control of chamber ventilation. The dampers shall be actuated through electric torque actuators and integrated with the PLC control system to regulate airflow based on programmed ventilation cycles and chamber operating conditions, ensuring proper control of ethylene concentration, CO_2 levels, temperature, and humidity within the ECRC.

Quantity	: 12 Nos. (1 No Each Chamber)
Duct Diameter	: min. 300 mm
Fan Make	: Nisiki / Hicool make
Required Torque for operation	: As per Design

Quantity: 12 Set

2. Fruit Ripening System For RC Chamber (4 Set for Banana & Mango)

❖ Condensing Unit & Evaporating Unit:

- **Functional Requirement**:

The refrigeration system shall comprise an air-cooled condensing unit and evaporating unit of suitable capacity to maintain the specified chamber temperature under all operating conditions. The system shall include a Semi hermetically sealed compressor, refrigerant receiver, filter drier, liquid solenoid valve, temperature control panel, cold room controller, and all necessary safety devices including high-pressure, low-pressure, under-voltage, over-voltage, single-phasing, and phase-reversal protection for safe and reliable operation. Room Temperature should be 18 to 22 ℃

- **Design Requirement:**

The refrigeration system shall consist of a suitably sized air-cooled condensing unit and evaporating unit capable of maintaining the specified chamber temperature under all operating conditions. The system shall include a semi hermetically sealed compressor, condenser coil, evaporator coil, condenser and evaporator fans, refrigerant receiver, filter drier, liquid line solenoid valve, service valves, temperature controller, and all necessary refrigerant piping and accessories. The system shall be provided with adequate safety and protection features, including high-pressure and low-pressure cut-outs, under/over-voltage protection, single-phasing protection, phase-reversal protection, overload protection, and automatic temperature control for safe, reliable, and energy-efficient operation. The complete system shall be suitable for continuous operation and designed to meet the chamber cooling load requirements.
Capacity : 44 TR per chamber
Condensing and Evaporative Unit: 2 Nos. (22 TR x2) (Minor ± change to be accepted)
Compressor qty : 2 Nos. (Per Chamber)
Compressor Make : Bitzer/ Emerson / Fras cold/Carrier Make (As per the approved make for the condensing unit, the same make shall be considered for the compressor. Please try to offer the complete package.)
High/Low Pressure protection: to be provided by bidder
Condensing Unit Make : Bitzer/ Emerson / Fras cold/Carrier
Evaporative Unit Make : Carrier / Bluecold / Star Cooler

Scope of supply:
Condensing and evaporating unit including all required accessories and fittings.

❖ Automatic Temp, Humidity system:

- **Functional Requirement:**

The system shall automatically monitor and control temperature, humidity, and ethylene concentration within the chamber to maintain predefined set points, ensuring consistent product quality, operational efficiency, and reliable process performance. The system shall provide continuous data logging, alarm management, remote monitoring, and control through cloud-based connectivity.

- **Scope of Supply**

Supply of a complete automatic temperature, humidity, and ethylene control system integrated with the main chamber control system, including temperature sensors, humidity sensors, ethylene sensors, main controller, data logger, HMI/display interface, communication modules, remote monitoring and control system, internet cloud connectivity, alarm and event management system, and all required accessories necessary for complete monitoring, control, and data management of the chamber.

❖ Sensors:

Functional &Design Requirement

Application: To monitor Temperature, humidity and gases inside RC Chamber.
Range : 0 to 100 d C for Temperature
0 to 100 Rh for Humidity
20 to 2000 PPM for ethylene gas

The sensing system shall be suitable for continuous monitoring of environmental conditions inside the RC chamber and shall provide accurate and reliable measurement of Temperature, Relative Humidity, Ethylene (C_2H_4) concentration, and CO_2 concentration for effective monitoring and control of the ripening process.

The sensing system shall be suitable for integration with the plant control/automation system. The required power supply and signal output shall be compatible with the control system and shall be confirmed by the Supplier.

Power Supply: 24 VDC, AO: 4-20 MA/2-10 VDC,

Output Signal: 2 to 20 ML AMP Outputs
Sensor Make: GAS Alarm Australia (Co2 sensor) MSR Germany (Ethylene sensor)
Sensor Model No.: Supplier to confirm
Measurement Range: 20-2000 ppm, Sensor Cell: Semiconductor,
Accuracy: Supplier to confirm
Calibration Period: Supplier to confirm
Response Time: Supplier to confirm

- **Scope of Supply**

Supply of Temperature, Relative Humidity, Ethylene (C_2H_4), and CO_2 sensors complete with sensor housings, mounting accessories, signal transmitters, interconnecting cables, power supply requirements, and all necessary hardware for integration with the RC chamber monitoring system.

❖ **Automatic Fruit Ripening System (Ethylene Dosing):**

- **Functional &Design Requirement**

The Automatic Fruit Ripening System shall provide controlled and uniform fruit ripening by automatically maintaining the required ethylene gas concentration, temperature, humidity, and CO_2 levels inside the RC chamber. The system shall be PLC-based and equipped with Temperature, Relative Humidity, Ethylene Gas, and CO_2 sensors for continuous monitoring and control. The PLC controller shall regulate ethylene gas dosing on both PPM and timer-based logic to maintain the desired ethylene concentration within the range. Ensuring safe, efficient, and consistent ripening conditions. The system shall include monitoring, alarms, interlocks, data logging, and automatic operation to achieve reliable chamber performance with minimal operator intervention.

- **Scope Of Supply**

Complete Automatic Fruit Ripening System for Banana, including Temperature, Humidity, Ethylene Concentration, and CO_2 Sensors with Automatic PLC-Based Control System.
Ethylene Concentration: Supplier to confirm

❖ **Auto Ventilation Motorized Damper (CO2 or Other gases removal):**

- **Design Requirement**:

The automatic ventilation system shall consist of motorized dampers installed in the fresh air and exhaust air ducts for automatic control of chamber ventilation. The dampers shall be actuated through electric torque actuators and integrated with the PLC control system to regulate airflow based on programmed ventilation cycles and chamber operating conditions, ensuring proper control of ethylene concentration, CO_2 levels, temperature, and humidity within the RC chamber.

Quantity: Minimum 2 Nos. for CO2 at Bottom & 2 Nos. for ethylene at Top (The duct/fan size & numbers of the exhaust opening shall be decided as per the need of the ripening process design requirements of each chamber considering banana as well as tropical fruits like mango and papaya)

Duct Diameter : Supplier to confirm

Fan Make : Nisiki / Hicool make

❖ **Humidifiers:**

- **Functional & Design Requirement:**

The humidification system shall be capable of maintaining the chamber relative humidity within the specified operating range under all operating conditions. The system shall generate fine water mist for uniform humidity distribution throughout the chamber without causing water carryover, condensation, or wetting of the stored fruit. The humidifier shall be suitable for continuous operation within the specified ambient temperature range and shall be constructed in corrosion-resistant stainless-steel material. The system shall be provided with automatic humidity control through suitable sensors and controllers, integrated air distribution arrangement, automatic low-water level protection, thermal overload protection, and all necessary electrical and safety features required for reliable and efficient operation. The complete system shall include all accessories, piping, fittings, controls, and mounting arrangements necessary for proper installation and operation.

Humidity Control Range: 25% to 80%

Humidifiers: 4 Qty. (1 No Each Chamber)

Operating Temperature: 18 Deg c to 50 Deg c

Atomization Frequency: 2 minutes timer (Adjustable system to be provided to change as per requirement)

Dimensions : Supplier to confirm

Weight per Unit : Supplier to confirm

- **Scope of supply:**

Humidifiers system with all the required accessories and equipment

Note: OEM shall provide the facility for ripening mangoes in the RC Chamber.

QTY: 4 Set (Preferably One for Each AHU each chamber)

3. Electrical system For ECRC & RC Chamber

❖ Control Panel for ECRC System:

- **Functional Requirement**

The control panel shall provide centralized control, monitoring, and protection of all connected equipment, ensuring safe, reliable, and efficient operation through Auto/Manual modes, operational interlocks, status indications, and fault protection. The panel shall be housed in an IP55-rated enclosure and supplied complete with all necessary power and control components, wiring, cabling, terminations, and accessories required for a fully functional installation.

- **Design Requirement**

Rating: IP 55
Design: Flame retardant construction, heat resident and suitable for industrial operating condition.
The panel shall be complete with all required power and control components including MCBs, contactors, overload relays (OLR), breakers, relays, timers, connectors, terminal blocks, selector switches, and indicator lamps.
Switches: Auto /manual

- **Scope of Supply**

IP55-rated, powder-coated, heat-resistant, and flame-retardant control panel enclosure.
Complete power and control circuitry including MCBs, contactors, overload relays (OLR), breakers, relays, timers, terminal blocks, connectors, and selector switches.
Auto/Manual selector switch.
Complete cabling from control panel to fans and fans.
Motor protection and control interlocks for safe operation.
All mounting hardware, supports, fasteners, and accessories required for installation.
Testing, commissioning support, and documentation as applicable.

Quantity: Supplier to confirm

❖ Control panel For Banana RC:

- **Functional Requirement**

The control panel shall provide centralized control, monitoring, and protection of all connected equipment, ensuring safe, reliable, and efficient operation through Auto/Manual modes, operational interlocks, status indications, and fault protection. The panel shall be housed in an IP55-rated enclosure and supplied complete with all necessary power and control components, wiring, cabling, terminations, and accessories required for a fully functional installation.

- **Design Requirement**

Rating: IP 55
Design: Flame retardant construction, heat resident and suitable for industrial operating condition.
The panel shall be complete with all required power and control components including MCBs, contactors, overload relays (OLR), breakers, relays, timers, connectors, terminal blocks, selector switches, and indicator lamps.
Switches: Auto /manual

- **Scope of Supply**

IP55-rated, powder-coated, heat-resistant, and flame-retardant control panel enclosure.
Complete power and control circuitry including MCBs, contactors, overload relays (OLR), breakers, relays, timers, terminal blocks, connectors, and selector switches.
Auto/Manual selector switch.
Complete cabling from control panel to fans and fans.
Motor protection and control interlocks for safe operation.
All mounting hardware, supports, fasteners, and accessories required for installation.
Testing, commissioning support, and documentation as applicable.

❖ Cables and Cable trays:

- **Scope of Supply:**

Cables and Cable Trays with suitable sizes for fans, exhaust fans, cooling water pumps, sensors, humidifiers, dampers, and associated equipment.
Cable type: Steel braided flexible armoured copper cable

Cable MOC: Copper

Qty: 1 Set

4. Spears for 2 year operation ECRC & RC:

The Bidder shall supply all necessary spare parts required to ensure two years of continuous and reliable operation of the Pre-processing Line.

Note: The inclusion of this item is subject to confirmation during the detailed process review and may be excluded from the final scope.

Quantity: 1 Lot

5. Installation, Testing, Commissioning, acceptance & Training

Design Qualification (DQ)

Design qualification (DQ) for the complete system with all its components, is to be prepared by bidder and submitted to purchaser for approval. DQ document should comprise of Detailed Design Calculations, Equipment GA drawing, instrumentation details and detailed P&ID etc. Design code for all fabricated items needs to be mentioned in the documents as per applicable standards.

Quality Assurance Plan (QAP) which includes material inspection, Testing, Fabrication shall be submitted to purchaser for approval

Installation Qualification (IQ)

Installation Qualification shall include the following activities:

- Preparation of IQ protocol (which includes correct component selection, installation as per OEM, connection of all connected utilities, use of approved skilled manpower, approved quality consumables, compliance to BEP and statutory requirements) shall be done by Bidder and submitted for approval.
- After completion of installation, the successful Bidder shall check /verify whether installation of each and every component of the plant is as per approved layout, P& ID drawings and as per order specifications.
- The scope also includes the successful Bidder shall tag mark / neatly type lettering Name of equipment, capacity, direction flow, etc. on major component, piping.

Operational Qualification (OQ)

The successful Bidder shall submit OQ & PQ documents, after approval of DQ & IQ documents, as per approved protocol.
OQ document should log/ record data during initial operations for the following:

- Duty/ capacity range (with Max & min)
- Operating conditions (ambient /room condition)
- Inlet & outlet product flow conditions.
- Safety checks

Performance Qualification (PQ)

After the system has been stabilized, the successful bidder shall measure / record actual performance parameters for all equipment, as indicated in the OQ. PQ should conform to the intended system performance as per order/ design (with necessary calculations if any). The test readings in general shall be taken by the supplier in the presence of client & purchaser representative.

All report formats (protocol) and acceptance criteria should be approved by purchaser & client adequately in advance of starting test. All instruments should be calibrated and certificate copy should be attached with reports.

PROJECT MANAGEMENT

Time Schedule

The project execution shall be time-bound as per the mutually agreed time schedule which would not exceed date mentioned in 'DELIVERY & TIMELINE'

The Project Manager will provide the Purchaser's Project in charge with monthly progress reports which clearly indicate the actual Vs. planned progress and the new likely completion dates of supply, erection, commissioning and performance trials.

The project staffing pattern shall be submitted with the offer and should include sufficient personnel to meet the execution time schedule.

Management Team

A competent execution team shall be deputed at site and shall be headed by a Project Manager who shall be adequately experienced in Project Management of such magnitude and type. The Project Manager shall avail of assistance from reputed experts in various fields who shall be directly responsible for satisfactory execution.

The Project Manager shall be responsible for overall implementation of the entire project, from commencement to the final takeover of the plant. Services of a Project Engineer shall be ensured for the day to day operations and co-ordination to ensure successful and satisfactory design, procurement, manufacture, inspection, erection, testing & commissioning of all the equipment/ facilities/ systems within the time-bound schedule.

The Project Manager and Project Engineer shall attend all technical and review meetings between various parties involved in the project and ensure implementation of all decisions taken in the meetings.

The Project Manager shall be responsible for detailed material accounting at site and management of the store maintained at site.

The Purchaser shall nominate a Project In-charge with whom the bidder shall generally communicate/co-ordinate.

The bidder has to fully authorize the Project Manager to take on-the-spot decision with regard to:

- Modification in layout and execution plan to suit local conditions.
- To purchase essential materials from local market to avoid delays.

For smooth execution of the project, a team of Project Manager and Key Personnel shall remain consistent throughout the execution period.

After satisfactory erection and testing, competent commissioning team shall be deputed to establish the performance parameters for a specific period.

Approvals

Bidder shall submit the technical documents and drawings within agreed time schedule. Approval on technical documentation (with or without specified amendments) shall be taken by Purchaser after submission. The amendments which are not in the original scope of work or due to changes in concept, shall be taken up by the bidder as per mutually agreed rates to be decided before execution, and shall be binding on the bidder.
Bidder shall obtain approval for purchase of specific makes of equipment whose makes are not mentioned in his offer. All the detailed design calculations regarding the selection of equipment sizes, System types, etc. shall be submitted to Purchaser for their specific observation and record.

Inspection

The Bidder shall submit the Inspection and Test Plan for complete system for Purchaser's approval. The purpose of this document is to provide guidelines and agreement on the Quality Control activities and inspection clearances of

fabricated equipment, materials and bought out equipment being supplied by bidder.

The bidder shall invite Purchaser for inspection and preliminary testing as per approved Inspection and Test Plan. The inspection may be required at various stages of manufacture/assembly for some items. However, for imported items where the inspection has to be done abroad, the bidder shall do the inspection at his cost and submit the necessary test certificate.

Installation:

It includes unloading, shifting, positioning, installation, interconnecting pipework of Equipment on foundation covering both mechanical and electrical, according to the agreed layout by the bidders qualified representative.

Start-up assistance, Testing, Commissioning, acceptance & Training:

The scope of this service includes the testing, commissioning, acceptance and running product trials to confirm performance parameters, with the project goal set to commence product trials and service load trials.

Training

Training shall be undertaken by the bidder. The bidder would train all levels of staff of the client in operating the plant including managers, engineers, supervisors, operators and maintenance personnel.

Training would be given both at site and the manufacturer's works and a schedule should be proposed by the bidder, together with the content of training programme, their duration and venue.

Training should commence during the erection and commissioning period as follows:

- During erection
  Exposure to the working and construction of the various equipment comprising the various systems of the plant, including instrumentation and controls.

- During commissioning
  Exposure to and training on the operations and maintenance of the various equipment in the plant including the testing, calibration setting of instruments both local and panel mounted.

Familiarization with start-up procedures, management operations, basic principles of controls, control during operation and adjustments, fault finding and including operation and maintenance on control system and maintenance of the plant

Training on safety aspects, service and machine guidelines, operator trouble shooting guidelines for operation and maintenance staff.

6. Non-Comprehensive AMC (minimum 4 Visits per annum & unlimited breakdown after warranty period) for 2 year:

The Bidder representatives (technical and skilled engineer) shall attend the project for continuous five working days in each quarter throughout two year after warranty period. These visits shall cover meetings, training, equipment adjustment, & servicing. These visits shall not cover guarantee work, which shall be undertaken separately.

The objectives of these visits are intended to ensure that the efficiency of the plant is maintained at the optimum level and

- To help improve operating and maintenance procedures.
- To keep the plant adjusted for optimum energy efficiency, product quality and minimum product losses.
- To arrange for service visits by specialists to inspect, service and carry out reports.
- To carry-out and audit of plant operating efficiency at regular intervals.
- In case of any breakdown except above mentioned 4 visits, bidder to plan visit on emergency basis upon intimation from purchaser during the whole AMC period

Note:

- The no. of skilled technical engineer deployed shall be decided by the bidder, and all expenses during visit shall be borne by bidder.

- The inclusion of this item is subject to confirmation during the detailed process review and may be excluded from the final scope.

7. Comprehensive AMC (minimum 4 Visits per annum & unlimited breakdown after warranty period) for 2 year:

The Bidder representatives (technical and skilled engineer) shall attend the project for continuous five working days in each quarter throughout two year after warranty period. These visits shall cover meetings, training, equipment

adjustment, & servicing. These visits shall not cover guarantee work, which shall be undertaken separately.

The objectives of these visits are intended to ensure that the efficiency of the plant is maintained at the optimum level and

- To help improve operating and maintenance procedures.
- To keep the plant adjusted for optimum energy efficiency, product quality and minimum product losses.
- To arrange for service visits by specialists to inspect, service and carry out reports.
- To carry-out and audit of plant operating efficiency at regular intervals.
- In case of any breakdown except above mentioned 4 visits, bidder to plan visit on emergency basis upon intimation from purchaser during the whole AMC period
- Any Parts required for preventive maintenance and in breakdown is in scope of bidder, and no additional charges to be payable for visit charges in case of part replacement.

Note:

- The no. of skilled technical engineer deployed shall be decided by the bidder, and all expenses including parts during visit shall be borne by bidder.

- The inclusion of this item is subject to confirmation during the detailed process review and may be excluded from the final scope.

APPROVED MAKES

The table below specifies the preferred approved makes of major equipment/ accessories. Where more than one makes are considered for an item OR no make is mentioned in the bid/order, bidder shall obtain prior written approval of Purchaser before commencing the manufacturing/placing an order on bidder as the case may be. However, as regards to the ultimate makes to be supplied to these projects, makes shall be finalized in consultation with the purchaser.

Technical Details **Serial No.**	**Description**	**Approved Make**
Sub-	ELECTRIC MOTORS	BHARAT BIJLEE / SIEMENS / ABB

components -		/ KIRLOSKAR / CG
	HP / LP STEAM / CONDENSATE VALVES	FORBES MARSHALL / SPIRAX SARCO / UKL
	BLOW DOWN VALVES	LEVCON / SHARP / LEADER / SPIRAX SARCO / UKL / FORBES MARSHALL
	WATER / AIR VALVES (BUTTERFLY / BALL)	SAUNDERS / AUDCO / INTERVALVE / BDK
	STEAM TRAPS & STRAINERS	FORBES MARSHALL / SPIRAX SARCO / UKL / ARMSTRONG
	NON-RETURN VALVES	AUDCO / SPIRAX SARCO/ UKL / FORBES MARSHALL / ARMSTRONG
	NON-RETURN VALVE FOR WATER (WAFER TYPE)	AUDCO / INTERVALVE / BDK / FORBES MARSHALL / UKL
	NON-RETURN VALVE FOR AIR LINE	INTERVALVE / AUDCO/ BDK
	AUTO DRAIN VALVE	ULTRA FILTER / ZANDER
	STEAM CONTROL VALVE	FORBES MARSHALL / SPIRAX SARCO / UKL
	STEAM PRESSURE REDUCING VALVES	FORBES MARSHALL / SPIRAX SARCO / UKL
	STEAM PRESSURE REDUCING STATION	FORBES MARSHALL / SPIRAX SARCO / UKL / ARMSTRONG
	STEAM / WATER FLOW METER	E & H / ROSEMOUNT / FORBES MARSHALL
	STEAM RELIEF VALVE	SEMPELL / LEADER / FAINGER LASER / TYCO
	AUTOMATIC WATER LEVEL CONTROLLER / MOBREY	MALHOTRA / ENGINEERING DEVICES / KDG MOBREY(UK) / LEVCON
	CONDUCTIVITY & PH TRANSMITTER	E&H / EMERSON / YOKAGAWA
	AIR LINES ACCESSORIES	SHAVO NORGEN / FESTO / AIRMATIC / LEGRIS / NUCON
	PRESSURE SWITCH / TEMP. SWITCH	DANFOSS / ALCO / HANSEN / PARKER / E & H / EMERSON / ENDERSON NEGELE / IFM
	PRESSURE SWITCHES	DANFOSS / ALCO / HANSEN / PARKER / E&H/ SWITZER / PYROTECH / ALTOP / GIC/ WIKA / INDFOSS
	PRESSURE & TEMP. GAUGE	FIEBIG / H GURE / WAAREE / WIKA / PRICOL
	PRESSURE GAUGES	FORBES MARSHALL / H GURU / FIEBIG / GLUCK / WIKA / BUMMER

	MANOMETER	TECHNOFLOW / FORBES MARSHALL
	LEVEL TRANSMITTER & INDICATOR	E & H/ EMERSON / ANDERSON NEGELE
	WATER LEVEL INDICATOR WITH DRAIN COCK	TELEFLO / SHARP / LEADER / HAWA / FORBES / MH BROS / WAREE INSTRUMENTS / TECHTROL / LEVCON
	TEMP. DIGITAL INDICATORS	E & H / EMERSON / RADIX / ENDERSON NEGELE / IFM / SICK / YOKOGAWA / HONEYWELL
	TEMPERATURE SENSORS AND DIGITAL INDICATORS/ CONTROLLERS/ RECORDERS	YOKOGAWA/ TATA HONEYWELL/ RADIX/ PYROTECH/ CHINO/ ENDRESS + HAUSER / NUTECH / GIC/ ALTOP INDUSTRIES
	TEMPERATURE SENSORS / DIGITAL INDICATOR / CONTROLLER / RECORDER	YOKOGAWA / CHINO / TATA HONEYWELL / RADIX / PYROTECH / E & H / MASIBUS
	DIAL TYPE THERMOMETERS	FORBES MARSHALL / H GURU / FIEBIG / GLUCK
	MS PIPES STEAM & CONDENSATE	TATA / JINDAL / KALYANI / MST / ISMT
	GI PIPES FOR AIR	TATA / JINDAL / KALYANI / MST / ISMT
	GI PIPES FOR WATER	TATA / MST / JINDAL
	STRUCTURAL STEEL	TATA, SAIL, JINDAL, RINL, IISCO
	RESIN BONDED MINERAL WOOL	LLOYD / UP TWIGA / MINWOOL / ROCKWOOL
	Electrical Control Equipment	
	Panel Manufacturer	CPRI Approved
	VFD	SIEMENS / ALLEN BRADLEY / DANFOSS / SCHNEIDER / LK (Formerly L&T) / ABB
	ELECTRONIC SOFT STARTER	DANFOSS /SIEMENS / ALLEN BRADLEY / ABB / SCHNEIDER / LK (Formerly L&T)
	CURRENT TRANSFORMER	KAPPA / AE / NEWTEK / L&T / PRECISE / RISHABH / ELMEX
	POTENTIAL TRANSFORMER	KAPPA / AE / NEWTEK / L&T / PRECISE / RISHABH / ELMEX
	INTELLIGENT MOTOR PROTECTION RELAY	SIEMENS / ABB / SCHNEIDER
	STARTER OVERLOAD RELAYS	ABB / SIEMENS / SCHNEIDER / LK
	APFCR RELAY	SIEMENS / TDK India Pvt Ltd. (TIPL) / LK (Formerly L&T) / ABB /

		SCHNEIDER / C&S
	VOLTAGE / CURRENT / ENERGY / POWER FACTOR TRANSDUCER	RISHABH / ENERCON
	POWER CAPACITORS	SIEMENS/SCHNEIDER/ TDK India Pvt Ltd. (TIPL)/ LK (Formerly L&T)/ABB/C&
	MULTI-FUNCTION METER	ALLEN BRADLEY / SIEMENS / ABB / LK (Formerly L&T) / SCHNEIDER/ SECURE
	DIGITAL & ANALOG AMMETER & VOLTMETER	RISHABH/ LK (Formerly L&T)/ SCHNEIDER/ SIEMENS/ABB/SECURE / HPL SOCOMEC / MECO
	ACB, MCCB, MPCB, Contactors, MCB	LK (Formerly L&T) / SIEMENS / SCHNEIDER / ABB
	HRC FUSES	LK (Formerly L&T)/ SIEMENS / EE / GE/C&S/EATON BUSSMAN
	INDICATING LAMPS	LK (Formerly L&T) / SIEMENS / SCHNEIDER / VAISHNO / TEKNIC / ABB / C&S
	TIMERS (ELECTRONIC)	LK/ SIEMENS / ABB / SCHNEIDER/C&S
	SWITCH DIS- CONNECTER FUSE UNITS	L&T / SIEMENS / ABB / SCHNEIDER / C&S
	PUSH BUTTONS	ESBEE / SIEMENS / ABB / VAISHNO / TEKNIC / LK (Formerly L&T) / SCHNEIDER/ C&S
	ISOLATING SWITCHES	SIEMENS / L&T / ABB / SCHNEIDER
	ROTARY SELECTOR SWITCH	KAYCEE / SALZER – L&T / SIEMENS / ABB
	Plug & Socket	LEGRAND / CLIPSAL / BCH / SCHNEIDER/ HAGER / ANCHOR / C&S / HENSEL / PCE / MENNEKES
	UPS	EMERSON/HI-REL/DELECTRONICS/ SOCOMEC / NUMERIC/ REILO/ SCHNEIDER / VERTIV
	SMF BATTERY	AMCO / EXIDE / AMARA RAJA
	PC (PERSONAL COMPUTER)	COMPAQ / HEWLETT- PACKARD / IBM LENEVO / DELL / ACER / HCL / WIPRO
	PLC / DCS SYSTEM	SIEMENS / ALLEN BRADLEY
	Network Printer	HP/Cannon
	Ethernet Switches	Phoenix/Rockwell/Siemens

	Unmanaged	
	Ethernet Switches managed	Cisco/Siemens/ Rockwell/Phoenix
	LT XLPE POWER CABLES, Control Cable	KEC (RPG) / FINOLEX / RR KABEL / POLYCAB/ SBEE /UNIVERSAL / APAR
	Steel braided Power & Control Cable	LAPP/SBEE/RR
	SIGNAL & INSTRUMENT CABLE	LAPP KABEL / FINOLEX / POLYCAB / RR KABEL / ERMOPAD/SBEE
	CABLE GLANDS	COMET / DOWELS / LAPP KABEL / BRAVO
	CABLE LUGS	DOWELS / COMET / LAPP KABEL
	CABLE TRAY	INDIANA / MEK / PILCO / ELCON / METALICA PRESSINGS / POWER CONTROLS
	IP 55 BOXES FOR MOTOR ISOLATORS, PUSH BUTTONS, JUNCTION BOXES ETC.	HENSEL / RITTAL / R STAHL/ PCE / MENNEKES/ HANSU
	TERMINAL BLOCKS	WAGO / LAPP INDIA / CONNECT WELL / ELMEX / PHOENIX
	CONDENSING UNIT	Bitzer/ Emerson / Fras cold/Carrier
	EVAPORATING UNIT	Carrier / Blue cold / Star Cooler

Note: While execution, choice of make would be made from the preferred list. Makes and model shall be approved by the purchaser expeditiously.

E. DETAILS NEED TO BE FURNISH BY BIDDER

Blank Details mentioned below shall be filled by Bidder while bidding:

Sr. No	Description	Mango/Papaya	Banana	UOM
	Utility Characteristic & Consumption Details (Process/Equipment Wise)			
1	Power			
2	Required Utility Power			
3	Steam			
4	Compressed Air			
5	Raw Water			
6	Soft Water			
7	RO Water			
8	Chilled Water			
9	Recycled Water			
10	Humidification			
11	Air Exhaust			
12	Condensate Return Quantity			
13	Condensate Return Temperature			
14	ETP Load / Inlet Water Details			
15	Heat Load			
16	Room Temperature to be maintain			
17	Ethylene Concentration To be maintain			

F. BATTERY LIMIT

Description	Purchaser's Scope	Bidder's Scope
Civil works	Necessary foundations/floor for equipment based on the details provided by the bidder	Supply of necessary foundation bolts, nuts along with the template, sub base, and all other associated erection materials
Installation	-	Unloading, shifting, positioning, installation, interconnecting pipework of Equipment on foundation covering both mechanical and electrical.
Utilities & Piping	Compressed Air, Steam, Raw/Soft/RO water	Interconnecting piping/ducting/platforms etc. of the supplied Machinery. Valves/instruments for Interconnection at side of Machine.
Drain lines	-	All drains shall be taken outside the Chamber and connected to common drain.
Permanent Power Supply	Purchaser Scope	-
Fruits	Purchaser Scope	-
Consumables	-	All necessary consumables such as oils, lubricants, chemical required for trial runs and commissioning.

G. PACKING

Bidder shall pack all the consignment in road worthy packaging strong enough to withstand rough handling during transit. Machine surface shall be suitably protected against scratches, corrosion, shocks, impact etc. Packages shall be suitably and distinctly identified for type of handling and kind of storage. The bidder shall take into consideration the 6-months' storage time, possibly in outdoor conditions, prior to final installation of the equipment. All Machines shall

be fitted with engraved name plate containing pertinent details such as make, model, capacity, PO Ref, Tag No

H. PERFORMANCE TESTS AND GUARANTEES

Performance test:

The bidder is required to detail the documentation proposed for performance test of all major equipment. This shall detail the guaranteed v/s actual throughput or output or performance (as relevant) and the tolerance of accuracy. Also, the test methods proposed to demonstrates that these guarantees have been met:

Formats of Guarantees:

- Guarantees for throughput of various sections of plant
- Consumption and losses
- Service consumption

Formats for performance tests:

- Procedure for carrying out the tests
- Method of measurement
- Test durations
- Evaluation methodology

PERFORMANCE PARAMETERS AND TEST PROCEDURE

General test procedure

On completion of the commissioning trials shall be operated for establishing the guaranteed performance. The performance trials shall be for 15 days of continuous operation along with main Plant process plant. The successful bidder shall during the performance trials depute their competent engineers for continuously 15 days' time to monitor the performance and take corrective actions as per requirement for improving the operation and performance of the system so that they run at guaranteed efficiencies.

Performance trials shall be conducted for the following:

- Capacity
- Efficiency
- Heat losses
- Individual equipment performance

If shutdown occurs due to external Force Majeure reasons after 16 hrs. of operation in any day, this shall be considered as a full day testing. If at less than 16 hrs. of operation, the trials shall be continued for an additional full day.

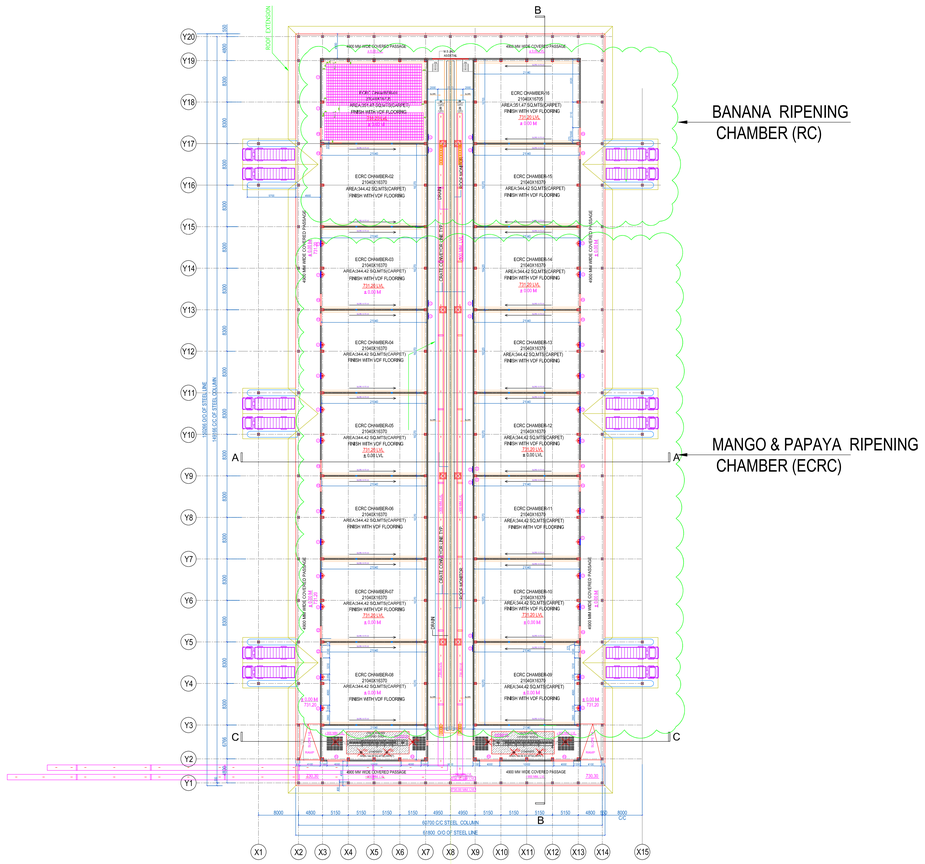
Guarantee / Warranty

12 months from the date of successful commissioning, product trial & acceptance of the plant

I. DELIVERY & TIMELINE

For the complete plant (design, manufacturing, supply, installation, testing, and commissioning, acceptance), the project goal is to commence product trials and service load trials within 9 months from the date of the Letter of Intent (LOI)/Purchase Order (PO) whichever is earlier.

RC CHAMBER - 170 MT CAPACITY FOR BANANA (PER CHAMBER)
210 MT CAPACITY FOR MANGO (PER CHAMBER)
(STACKING - 8 LAYER)





ECRC CHAMBER - 210 MT CAPACITY FOR MANGO (PER CHAMBER)
(STACKING - 8 LAYER)

