



**UREA (Neem Oil Coated) HANDLING & BAGGING PACKAGE ON  
LSTK AND SINGLE POINT RESPONSIBILITY BASIS  
AT  
TALCHER FERTILIZERS LIMITED, ODISHA (INDIA)**



Date: 29.09.2021

**AMENDMENT-I to NIT No. : PNMM/PC-183/E-4010/NCB dated 06.08.2021.**

**Sub: UREA (Neem Oil Coated) HANDLING & BAGGING PACKAGE ON LSTK  
AND SINGLE POINT RESPONSIBILITY BASIS AT TALCHER  
FERTILIZERS LIMITED, ODISHA (INDIA).**

This is for information to all Bidders who are willing to participate in the subject NIT, that Amendment-I dated 29.09.2021 is being issued and shall be read in conjunction to the NIT and subsequent amendment issued till dated.

**\*All other terms and conditions of the NIT shall be as per original NIT and subsequent Amendment(s).**

For & on behalf of  
Talcher Fertilizers Limited

(P R Sahu)

Addl. General Manager (M.M)  
Projects & Development India Limited

Enc. As Above.



## UREA (NEEM OIL COATED) HANDLING & BAGGING PACKAGE

NIT NO. : PNMM/PC-183/E-4010/NCB

Amendment-I : Technical, dated 29.09.2021



SL. NO.	REFERENCE OF BIDDING DOCUMENT				AMENDMENT TYPE M/D/A	MODIFICATION
	Part/Sec.	Page No.	Clause No.	Description as per NIT		
1.	Section VI/ 3.1.1  (sheet 5 of 40)	348 of 1571 (NIT)	3, S.No.12	Bag testing machine	M	Bag Test machine  <b>To be considered as:</b>  3 Nos./Sets of Microprocessor controlled digital empty bag testing machine alongwith PC, Printer & Electronic portable balance for determination of breaking strength of fabric as per IS standards for packing fertilizer.
2.	Section VI/ 3.1.1  (sheet 23 of 40)	366 of 1571 (NIT)	10.2.1 a)	Bulk Silo storage capacity	M	Bidder to furnish silo layout including silo storage capacity for client's approval.  <b>To be read as:</b>  Effective storage capacity of existing silo after installation of salt scraper shall be approx. 30,000 MT, Bidder to furnish silo layout including silo storage capacity for client's approval during detail engineering.
3.	Section VI/ 9.0	1493 of 1571 (NIT)	Complete Section	Information required in Technical Bid	D	Complete Section VI/ 9.0 stands deleted.  However, Drawings & Documents to be submitted as per Section VI- 5.0 (Rev.1) of NIT.
4.	Section VI/ 5.0	1416 of 1571 (NIT)	Complete Section	Drawings & Documents	M	Section VI- 5.0 (Rev.0) of NIT is replaced with revised Section VI- 5.0 (Rev.1) of NIT, attached with this Amendment.

**UREA (NEEM OIL COATED) HANDLING & BAGGING PACKAGE****NIT NO. : PNMM/PC-183/E-4010/NCB****Amendment-I : Technical, dated 29.09.2021**

SL. NO.	REFERENCE OF BIDDING DOCUMENT				AMENDMENT TYPE M/D/A	MODIFICATION
	Part/Sec.	Page No.	Clause No.	Description as per NIT		
5.	Section VI/ 3.4 (sheet 8 of 101)	1120 of 1571 (NIT)	2.0	DOCUMENTATION – Vendor Data requirement	D	Section VI/ 3.4, Design Specification – Instrumentation, Clause No- 2.0 (DOCUMENTATION - Vendor Data requirement) stands deleted.

LEGEND:

M: MODIFICATION, A: ADDITION, D: DELETION

	<b>UREA HANDLING &amp; BAGGING PACKAGE</b> <b>TFL- TALCHER</b> <b>DRAWINGS AND DOCUMENTS</b>	PC183/E-4010/SEC VI/ 5.0	1	
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## SECTION VI- 5.0

### DRAWINGS AND DOCUMENTS

#### UREA HANDLING & BAGGING PACKAGE

**[UREA (NEEM OIL COATED) HANDLING SYSTEM, BULK SILO  
AND BAGGING SYSTEM INCLUDING FILLED BAGS  
STACKING/ LOADING TO WAGON & TRUCK]**



**PLANT: AMMONIA-UREA PLANT BASED ON COAL  
GASIFICATION**

**PROJECT: INTEGRATED ROM BASED FERTILISER  
COMPLEX AT TALCHER, ANGUL DISTRICT, ODISHA (INDIA)**

	<b>UREA HANDLING &amp; BAGGING PACKAGE</b> <b>TFL- TALCHER</b> <b>DRAWINGS AND DOCUMENTS</b>	PC183/E-4010/SEC VI/ 5.0	1	
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Section Number	Description
1.0	Drawings & Documents
2.0	Category of Drawings/Documents
3.0	List of Drawings & Documents

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## 1.0 DRAWINGS & DOCUMENTS:

This chapter details out various drawings and documents to be generated at various stages during the course of execution of the Project by the Contractor/Bidder for different project activities. Categorization of the documents/ drawings for review/ information/ records of PMC and the review/ approval requirements of the Owner/ PMC along with routing of the documents/ drawings will be finalized during detail engineering.

The efficient handling of drawings and documents to be prepared by the Contractor under the contract is the key to the timely completion of the plants. The Contractor undertakes to ensure that all drawings and documents to be submitted by him to the Owner/ PMC shall be of professional quality and conforming to the contractual requirements. The Contractor also undertakes to institute a formal drawing control system which will be documented and submitted to the Owner/PMC.



Compliance of this chapter on drawings and documents is mandatory and is non-negotiable.

The drawings / documents are to be generated by the Contractor at various stages of the project covering different activities. The drawings / documents generated will be in the category of Approval/ Review/ Information. The list of drawings and documents required is enclosed; however, the categorisation for the drawings/ documents will be informed separately. However, this will in no way relieve the Contractor of responsibility to conform to drawings, standards, specification, codes and contractual requirements / obligations.

The Contractor shall prepare the drawing numbering procedure. Each Drawing submitted by the Contractor shall be clearly marked with the name of the Owner, PMC with revision number & date. It should contain the minimum following details:

- a. Size of Drawing.
- b. Discipline of Engineering for which the drawing is issued.
- c. Discipline wise segregation of numbering sequence for example:  
100 Series for Process. 200 Series for Mechanical etc.

For drafting of Drawings, Computer aided design and drafting, AutoCAD 2015 shall be used. Further, standard, approved and well established P.C. based computer programmes/software packages, available in market shall be used by the Contractor/his subcontractors/vendors etc. in general.

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For drawing, data sheet and all graphic works AutoCAD 2015 and for all texts, MS Word Package 2012 shall be used. Hard Copies (3 nos.) and Soft Copies of all calculations & Drawings (applicable paper size) shall be made available by the Contractor for Owner/PMC review.

All documents before forwarding to Owner/PMC will have to be vetted in detail by the Contractor/duly approved engineering sub-contractor appointed by the Contractor. Document received without vetting will be returned.

The review by the PMC/Owner shall not be construed by the Contractor, as limiting any of his responsibilities and liabilities for mistakes and deviations from the requirements, specified under these specifications and drawings.

Each drawing submitted by the Contractor shall be clearly marked with the name of the Owner, Unit Designation, Specifications, Title, Specification number and the name of the Project with Revision number and date. If standards, catalogue pages are to be submitted, the applicable items shall be indicated therein. All titles, noting, markings and writings on the drawings shall be in English.



All the dimensions should be in metric units. Upon receiving comments on Drawings & Documents by the Contractor, the subsequent submission should give compliance report, separately on each of the comments, document-wise. Comments given by PMC/Owner to be discussed and finalised within agreed schedule.

The schedule of submission of the Drawings & Documents shall be in accordance with project plans only. The detailed list under different category, document-wise, shall be prepared by the Contractor for approval of Owner/PMC. This activity is to be completed within one month of Letter of Intent (LOI).

Sequence of submission of drawing is essential for proper review of documents and timely completion of the project is to be adhered. In case sequence is not maintained, the documents submitted will not be reviewed by Owner/ PMC and responsibility of timely execution of plant shall be to the Contractor's account.

## 2.0 CATEGORY OF DRAWINGS/DOCUMENTS:

Category	Description	Action by Owner/ PMC
1	Records/ Information	Contractor can continue to progress with the work. This drawings or documents will be retained with Owner/PMC for information only. Owner/ PMC reserves the right to



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		advise the Contractor of any comments (deviations from the contract) at any time and the contractor is liable to respond to satisfy that the work being done is in accordance with the contract; deviations, if any will be bidder's risk and cost.
2	Review/Approval	<p>Owner/PMC will review and advise the Contractor of any Comments on Contractor's Drawings / documents within specified schedule (ie 2 weeks), from date of receipt in Owner/PMC office of Contractor's drawings/documents. The review period is defined as date of receipt of documents by Owner/PMC, to date of issue of comments by Owner/PMC. This review period shall be valid only if submission of drawings is done by Contractor in accordance with approved drawings / documents schedule as indicated in ITB. In case of any non-conformity to the above by Contractor due to which the period of review extends beyond 2 weeks by the Owner/PMC, schedule delay, if any will have to be absorbed by the Contractor.</p> <p>Review of documents / drawings shall be categorized as follows:</p> <ul style="list-style-type: none"> <li>i) Code-3: Not accepted. New Document / Drawing to be submitted</li> <li>ii) Code-2: Accepted with comments as marked</li> <li>iii) Code-1: Final approval</li> </ul>

The documents falling under Review category will be returned with comments within specified time schedules subject to fulfilling other conditions enumerated. The information category document will be retained for information only but however Owner/PMC reserves the right to comment at any stage of the Project, but not later than two weeks of receipt.

Contractor to submit procurement & manufacturing status report for all major items.





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As Built Drawings:

Contractor will furnish reproducible and electronic files of all the drawings under their scope to Owner / PMC, certified as "As-Built Issue" by Third Party Inspection Agency (TPIA) for Vendor Items coming under Third Party Inspection / Contractor for all other drawings.

Upon completion of identifiable units or components of the fabrication, construction and installation phase of the project the Contractor will complete all the related plans to the "as built" stage including all Vendor drawings and furnish Owner/PMC with the following:

- a. One complete set of all original tracings/autocad copies.
- b. One complete set of reduced size (A3-297x420 mm) copies of all drawings.
- c. One set of CD/Pen Drive for all documents/drawings/data
- d. All the as built drawings duly certified should be scanned and converted into electronic files made on magnetic/discs/optical long storage.
- e. All other project documents such as operating and maintenance manuals, manufacturers' Catalogues etc. shall also be scanned on magnetic/optical discs for safe storage and retrievals by the Owner when needed.
- f. 10 complete sets of full size prints of the drawings and 4 sets of reduced size prints.
- g. 10 complete bound sets of Manufacturer's specifications including design calculations.
- h. 10 complete sets in hard binders of the Manufacturers data book including certified prints and data for all items including test reports. Data Books shall be complete with index as tag numbers associated with Manufacturer's data shown. Equipment data shall include as a minimum requirement the principal and description of operation, drawings and dimensions, spare parts lists and un-priced purchase orders and bill of material.
- i. 10 bound copies each of the Spare Parts data books and the Lubricants inventory Schedule.
- j. 10 complete sets of field records shall be signed by both the Contractor's and Owner's Representative at the site.
- k. Original approvals and related drawings and documents from the statutory authority, as applicable.
- l. Copies of correspondence with the statutory authorities, as applicable.

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### 3.0 LIST OF DRAWINGS & DOCUMENTS:

Sl. No.	Description	With Bid (Y/N)	For Review/ Approval	For Information	Final/ Approved/ As-built
<b>A.</b>	<b>MATERIAL HANDLING</b>				
1.0	Flow Diagram of Material Handling system	Y	Y	-	Y
2.0	Conveyors Layout drg.	Y	Y	-	Y
3.0	Bagging Plant Layout including scheme of filled bag stacking/loading	Y	Y	-	Y
4.0	Layout of all the Transfer Tower showing outline dimensions of all the equipments	N	Y	-	Y
5.0	General Arrangement drawing (showing part list, quantity, weight, main dimensions, all specifications etc.) of all equipments e.g – Bulk & Bag handling Conveyors, Bucket elevator, Salt Scraper, Bagging & Stitching m/c, Bunker, Wagon & Truck loader, Dust extraction system etc.	N	Y	-	Y
6.0	Data Sheet/Specification Sheet of all equipments completely filled in as per format	N	Y	-	Y
7.0	Power, capacity and Pulley shaft dia calculations of all the conveyors as per CEMA / IS 11592.	N	Y	-	Y
9.0	Bunker/Hopper capacity calculation	N	Y	-	-
10.0	Dust Extraction system design basis/calculation	N	Y	-	-
11.0	Civil Scope Drg. with Load data for design of buildings, gantry, foundations etc	N	Y	-	-
12.0	Detail GA drg. of all conveyors gantry, transfer towers, bagging plant including railway platform showing all the equipments & machinery inline with Civil drg.(by others)	N	Y	-	Y
13.0	Catalogue for spare parts	N	-	Y	-
14.0	Design calculations of equipments structural including base plates	N	-	Y	-
15.0	Instruction manual showing installation, operation & maintenance procedure for all mechanical as well as electrical &	N	-	-	Y



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Sl. No.	Description	With Bid (Y/N)	For Review/ Approval	For Information	Final/ Approved/ As-built
	Instrument items, parts list and bearing lubrication schedule substantiated by sketches and drawings.				
16.0	Any other drawing required by owner / Consultant.	N	-	Y	Y
<b>B.</b>	<b>ROTATING EQUIPMENT</b>				
	<b>PUMPS</b>				
1	General Description and Equipment List	N	Y	-	Y
2	List of drawings / documents including drawing number, revision number, description and approval status	N	Y	-	Y
3	Detailed manufacturing programme (Time bar chart)	N	Y	-	Y
4	Certified dimensional outline drawing	N	Y	-	Y
5	Cross sectional drawing and bill of material	N	Y	-	Y
6	Shaft seal drawing and bill of material	N	Y	-	Y
7	Shaft coupling assembly drawing and bill of materials including allowable misalignment clearances, shaft bores & key ways dimensions with tolerances and the style of coupling guard	N	Y	-	Y
8	Primary & auxiliary sealing schematic and bill of materials including seal fluid, fluid flows, pressure pipe and valve sizes, instrumentation, orifice sizes, and piping arrangement drawings	N	Y	-	Y
9	Cooling or heating schematic and bill of materials including cooling & heating media, fluid flows, pressure, pipe and valve sizes, instrumentation, orifice sizes and piping arrangement drawings	N	Y	-	Y
10	Lube oil schematic and bill of materials	N	Y	-	Y
11	Lube oil system arrangement drawing including sizes, rating and location of all customer connections	N	Y	-	Y
12	Lube oil component drawings data	N	Y	-	Y
13	Electrical and instrumentation schematics, wiring diagrams and bill of materials	N	Y	-	Y



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Sl. No.	Description	With Bid (Y/N)	For Review/ Approval	For Information	Final/ Approved/ As-built
14	Electrical and instrumentation arrangement drawing and list of components	N	Y	-	Y
15	Performance curves	N	Y	-	Y
16	Pump specification sheet with complete details in Performa enclosed with enquiry / order	N	Y	-	Y
17	Certified foundation assembly drawing of pump with driver & all accessories mounted on base plate with load diagram for foundation design	N	Y	-	Y
18	Engineering flow diagram showing: - Lubrication & sealing lines - Flushing / washing lines - Cooling / steam lines	N	Y	-	Y
19	Reference list for pumps supplied in past for similar duty conditions. Reference list shall contain complete address of user, user's purchase order number, brief specifications and date of commissioning	N	-	-	Y
20	Lube oil schedule	N	Y	-	Y
21	Automatic recirculation valve assembly drawing, sectional drawing with bill of material	N	Y	-	Y
22	Quality Assurance Plan.	N	Y	-	-
23	Material test certificates and Inspection & performance test report along with dispatch clearance certificates from inspector	N	-	-	Y
24	Instruction manuals describing installation, operation and maintenance procedures	N	-	-	Y
25	Spare parts list	N	-	-	Y
26	Parts catalogue complete with reference drawing nos. and sketches etc.	N	-	-	Y
	<b>FANS &amp; BLOWERS</b>				
1	General Description and Equipment List	N	Y	-	Y
2	Specification sheets completely filled in proforma.	N	Y	-	Y
3	Characteristic Curves - Performance curves, showing discharge pressure, capacity, and brake horse power at the	N	Y	-	Y



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Sl. No.	Description	With Bid (Y/N)	For Review/ Approval	For Information	Final/ Approved/ As-built
	inlet specified conditions (Pressure, capacity, temperature, molecular weight).				
4	Spare parts list	N	-	-	Y
5	Details of Lubrication and sealing system	N	Y	-	Y
6	Data for selection of motor :	N	Y	-	Y
	a) Type				
	b) HP absorbed at duty point				
	c) RPM				
	d) Recommended HP				
	e) Max. starting torque as % NRT				
	f) GD2 figure for rotating mass of the Fan / Blower				
	g) Speed vs. Torque for the Fan / Blower				
7	General Arrangement Drawing with all main dimensions, size and location of connections for ducting with all horizontal & vertical clearance necessary for installation and disassembly.	N	Y	-	Y
8	Cross sectional drawing of fan with parts list	N	Y	-	Y
9	Instruction manual for erection, installation operation and maintenance of fan and its accessories (Important clearances to be maintained should be clearly specified).	N	-	-	Y
10	Q.A.P and Test procedure	N	Y	-	Y
11	Lubrication schedule	N	Y	-	Y
12	Reference list indicating duty condition, location, year of installation, name of client etc.	N	-	-	-
13	GA drawing with all details & dims. Including fan, drive, motor	N	Y	-	Y
	<b>AGITATORS</b>				
1	General Description and Equipment List	N	Y	-	Y
2	Specification sheets completely filled in proforma.	N	Y		Y
3	General Arrangement Drawing with all main dimensions, size and location of connections for installation and disassembly.	N	Y		Y
4	Spare parts list	N	Y		Y
5	Details of Lubrication and sealing system	N	Y	-	Y



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Sl. No.	Description	With Bid (Y/N)	For Review/ Approval	For Information	Final/ Approved/ As-built
6	Q.A.P and Test procedure	N	Y	-	Y
7	Instruction manual for erection, Commissioning operation and maintenance .	N	-	-	Y
8	Reference list indicating duty condition, location, year of installation, name of client etc.	N	-	-	Y
<b>HVAC PACKAGE</b>					
1	General Description and Equipment List	N	Y	-	Y
2	List of drawings / documents including drawing number, revision number and description & approval status	N	Y	-	Y
3	Specification sheets - Completely filled in proforma.	N	Y	-	Y
4	General Assembly drawings - with main overall dimensions including those required for accessories and auxiliaries and all horizontal & vertical clearances for dismantling, direction of rotation etc.	N	Y	-	Y
5	Spare Part List	N	Y	-	Y
6	Description of Lubrication and sealing system	N	Y	-	Y
7	Manufacturing schedule, QAP	N	Y	-	Y
8	Cross-Sectional drawing of AC Plant and auxiliaries alongwith Bill of Materials	N	Y	-	Y
9	Instruction manuals for erection, commissioning , operation and maintenance of AC Plant and accessories.	N	-	-	Y
10	Material test certificates and Inspection & performance test report alongwith despatch clearance certificates from inspector	N	-	-	Y
11	Reference list for similar types of AC Plant supplied in past for similar duty conditions. Reference list shall contain complete address of user, user's purchase order number, brief specifications and date of commissioning along with operating conditions..	N	-	-	Y



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12	Lube oil schedule.	N	Y	-	Y
	<b>COMPRESSORS</b>				
1	List of drawings / documents including drawing number, revision number, description and approval status	N	Y	-	Y
2	Detailed manufacturing programme (Time bar chart )	N	Y	-	Y
3	Specification sheet complete filled in PDIL proforma enclosed with enquiry/order.	N	Y	-	Y
4	Equipment layout with main overall dimensions including those required for foundations and piping design for compressor and auxiliaries. (This layout shall include the driven equipment and its auxiliaries).	N	Y	-	Y
5	Performance curves for compressor.				
	i) For constant speed motor driven compressors Discharge pressure , Brake horse power , Polytropic head and Efficiency Vs Inlet capacity ( from surge point to 115 % of rated capacity ) of the compressor at specified inlet pressure, temp. and mol. wt of the gas for each stage and for overall compressor	N	Y	-	Y
	ii) Torque Vs Speed curve for the compressors.	N	-	Y	Y
6	Performance Curve of driver	N	Y	-	Y
7	i) Calculation of the lateral critical speeds of the compressors.	N	-	Y	Y
	ii) Calculation of the torsional critical speeds. Analytical report for torsional vibration of whole set.	N	-	Y	Y
	iii) Thrust loading curves for each casing / barrel for various operating conditions.	N	-	Y	Y
	iv) Response curve of deflection Vs RPM for varying amount of imbalance.	N	-	Y	Y
	v) Torsional critical response curve	N	-	Y	Y
8	Overall dimensional drawing with all main dimensions, size and location of piping connections for compressors and its	N	Y	-	Y



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Sl. No.	Description	With Bid (Y/N)	For Review/ Approval	For Information	Final/ Approved/ As-built
	auxiliaries.				
9	Cross sectional drgs. Of the compressor showing details of construction including sealing details, bearing etc. With part no., description and material of construction.	N	Y	-	Y
10	Coupling drawings	N	-	Y	Y
11	Seal assembly drawings & Bill of material	N	-	Y	Y
12	Lube oil Pumps				
	a) Specification sheet	N	Y		Y
	b) Performance curve	N	Y		Y
	c) Cross Sectional drawing	N			Y
13	Certified foundation scope drawing of the compressor with driver and all accessories resting on the foundation and control panel. In the event of motor not in the scope of supply of vendor the motor frame dimensions shall be supplied by the purchaser later). Direction and magnitude of all unbalanced forces, couples and centre of gravity along with direction of rotation shall also be mentioned	N	Y	-	Y
14	a) Engineering flow diagram indicating all instruments, valves, etc. marked with battery limit of supply of :	N	Y	-	Y
	- Process Gas lines - Cooling Water lines - Lubricating Oil lines - Condensate drain and vent lines				
	The above drawings shall identify all components by size, pressure rating and material				
	b) Material balance for gas, lube & seal oil.				
15	Piping layout plan and elevation drawings for gas, cooling water and utility lines, lube and seal oil lines etc.	N	Y	-	Y
16	Driver : Selection details	N	-	Y	Y
	a) Speed - torque diagram				
	b) GD2 of the rotating masses of the compressor referred to the motor speed				





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Sl. No.	Description	With Bid (Y/N)	For Review/ Approval	For Information	Final/ Approved/ As-built
17	a) Piping isometrics for gas pipes DN>20, piping manifold and all oil lines. b) Flexibility analysis for gas lines.	N	-	-	Y
18	Piping support location drgs. With forces, moments and movements for gas pipes and with weights for all lines.	N	Y	-	Y
19	Certified allowable forces, moments, movements, stresses for compressor nozzles.	N	Y	-	Y
20	Bill of Material for Piping and supports.	N	Y	-	Y
21	Bill of Material for insulation for Piping.	N	Y	-	Y
22	Bill of quantity for Painting for piping, equipments and auxiliaries.	N	Y	-	Y
23	Thermal calculation for heat exchangers, Mechanical calculation and fabrication drawings for heat exchangers and Pressure vessels.	N	Y	-	Y
24	Inspection and Test Procedure.	N	-	-	Y
25	Quality Assurance Plan.	N	Y	-	-
26	Inspection and test reports, material test certificates, radiographic reports duly approved by specified inspecting authority, certificates for compressors, heat exchangers, pressure vessels, pipings, valves, instruments and other auxiliaries.	N	-	-	Y
27	Lubrication schedule	N	-	-	Y
28	Instruction manual for erection, installation, operation and maintenance of compressor and its accessories (important clearances to be maintained should be clearly specified.).	N	-	-	Y
29	Recommended list of spares for two years trouble free operation	N	-	-	-
30	List of special tools	N	-	Y	Y
31	Installation list of similar machines shall also include the following : a) Client, location and year of installation b) Drive c) Model No. and type of compressor d) Duty condition of the compressor e) Speed and KW rating	N	-	-	-

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SI. No.	Description	With Bid (Y/N)	For Review/ Approval	For Information	Final/ Approved/ As-built
<b>C.</b>	<b>STATIC EQUIPMENT</b>				
	<b>STORAGE TANK</b>				



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REV

SHEET 16 of 22

Sl. No.	Description	With Bid (Y/N)	For Review/ Approval	For Information	Final/ Approved/ As-built
1	Outline Sketches Showing Thickness Of Main Parts, Details Of Internal Including Weight (Erection & Operating) And Anchorage Details Etc.	Y	-	-	-
2	General Arrangement Drawings Indicating Design Data , Fabricated Equipment Weight, General Notes, Nozzle Schedule, Details Of Shell, Supporting Arrangement , Main Weld Seams ,Nozzle Orientation Plan Etc.	N	Y	-	Y
3	Bottom And Annular Ring Layout & Weld Detail	N	Y		Y
4	Detail Of Sump For Drain Nozzles	N		Y	Y
5	Shell Plate Layout (Showing Location Of Nozzles And Manhole)	N		Y	Y
6	Mechanical Design Calculations Complying With The Specifications And Codes.	N	Y	-	Y
7	Detail Of Wind Girder	N	Y	-	Y
8	Stairways, Intermediate & Top Platform	N	-	Y	Y
9	Roof Plate Layout & Weld Detail	N	Y	-	Y
10	Detail Of Nozzles On Shell & Roof	N	-	Y	Y
11	Details Of Internals Like Guide Rollers, Roof Stoppers, Still Wells, Dip Pipe, Heating Coil E.T.C	N	-	Y	Y
12	Materials Test Certificates Duly Stamped By Inspecting Authority ( ** )	N	-	-	Y
13	Qap & Inspection And Test Plan ( ** )	N	Y	-	Y
14	Welding Procedure And Qualification Test Reports ( ** )	N	-	Y	Y
15	Destructive And Non Destructive Procedure & Test Reports (**)	N	-	Y	Y
16	Heat Treatment Procedure And Time Temperature Charts ( ** )	N	-	Y	Y
17	Radiographic Examination Reports & Films ( ** )	N	-	-	Y
18	All Final As- Built Shop Drgs. & Design Calculations Duly Certified By Third Party Inspecting Authority ( ** )	N	-	-	Y
19	Completion Certificates (Including Inspection Certificate, Hydrostatic Test Certificate , Local Code Requirements)	N	-	-	Y
20	Final Civil Load Data Including Details Of Foundation/Anchor Bolts	N	-	Y	Y
21	List of Spare Parts And Details	N	Y	-	Y
	Document marked as (**) are to be approved by authorized Inspection Agency and Statutory Authorities as applicable				



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	<b>VESSEL &amp; COLUMN</b>				
1	Outline Sketches Showing Thickness Of Main Parts, Moc, Details Of Internal Including Demister, Weight (Erection & Operating) And Anchorage Details	Y	-	-	-
2	General Arrangement Drawings Indicating Design Data , Fabricated Equipment Weight, General Notes, Nozzle Schedule, Details Of Shell, Heads Supporting Arrangement , Main Weld Seams ,Nozzle Orientation Plan Etc	N	Y	-	Y
3	Detail Of Nozzles, Manholes, Accessories Etc.	N	-	Y	Y
4	Detail Of Internals Such As Tray, Tray Support Ring, Bolting Bars Etc.	N	-	Y	Y
5	Detail Of Demister	N	Y	-	Y
6	Mechanical Design Calculations Complying With The Specifications And Codes.	N	Y	-	Y
7	Detail Of Packing Support, Demister Support, Grating & Grating Support	N	Y	-	Y
8	Detail Of Internal Distributor	N	Y	-	Y
9	Detail Of External Clips Such As Ladder, Plateform, Pipe Support	N	-	Y	Y
10	Detail Of Insulation ,Fireproofing	N	-	Y	Y
11	Detail Of Pipe Davit	N	-	Y	Y
12	Detail Of Lifting Lug, Tailing Lug & Trunion Etc. Including Design Calculation	N	-	Y	Y
13	Shell Development Drawings Incorporating All Attachements Amd Weld Seams	N	-	Y	Y
14	All Final As- Built Shop Drgs. & Design Calculations Duly Certified By Third Party Inspecting Authority ( ** )	N	-	Y	Y
15	Data Folder As Per Specification	N	-	Y	Y
16	Materials Test Certificates Duly Stamped By Inspecting Authority ( ** )	N	-	-	Y
17	Qap & Inspection And Test Plan ( ** )	N	Y	-	Y
18	Welding Prcedure And Qualification Test Reports ( ** )	N	-	Y	Y
19	Destructive And Non Destructive Procedure & Test Reports (**)	N	-	-	Y
20	Heat Treatment Procedure And Time Temprature Charts ( ** )	N	-	Y	Y
21	Radiographic Examination Reports & Films(**)	N	-	-	Y
22	Completion Certificates (Including Inspection Certificate, Hydrostatic Test	N	-	-	Y



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Sl. No.	Description	With Bid (Y/N)	For Review/ Approval	For Information	Final/ Approved/ As-built
	Certificate , Local Code Requirements)				
23	Packing And Forwarding Instruction (**)	N	-	-	Y
24	Transportation Drawing Showing Overall Dimension, C.G. Weight And Handling Instructions Duly Approved By Appropriate Authority	N	-	Y	Y
25	Final Civil Load Data Including Details Of Foundation/Anchor Bolts	N	-	Y	Y
26	List Of Spare Parts And Details	N	Y	-	Y
Document marked as (**) are to be approved by authorized Inspection Agency and Statutory Authorities as applicable					
<b>D. PIPING</b>					
1	Equipment layout drawing.	Y	Y	-	Y
2	Piping Layout drg.	N	Y	Y	Y
3	Quality control plan	N	-	Y	Y
4	Filled in Valve Data Sheet.	N	Y	-	Y
5	Design data:				
5.1	Design basis	N	Y	-	Y
5.2	Piping material specification	N	Y	-	Y
6	Issued for construction (IFC) Drawing.	N	-	Y	Y
6.1	Piping GA DRGS.	N	-	Y	Y
6.2	Isometrics	N	-	Y	Y
6.3	Piping supports, operating platforms drg.	N	-	Y	Y
7	Material Take-offs	N	-	Y	-
8	Material Requisitions schedule	N	-	Y	-
9	Design calculation / Documents.	N	-	Y	-
9.1	Flexibility Analysis of Piping	N	Y	-	-
9.2	Support and load data	N	-	Y	-
10	Vendor Drawings(Valves, Strainers, Traps etc)	N	Y	Y	Y
11	All inspection, testing & NDT Records.	N	-	Y	Y



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12	As Built Drgs/Docs/MTCs	N	-	-	Y
13.	3D Model	N		Y	Y
<b>E.</b>	<b>ELECTRICAL</b>				
1	Load List indicating rated and absorbed power of loads and duty type (Continuous / Standby / Intermittent) at different voltages including emergency loads.	N	-	Y	Y
2	Load Data indicating normal, peak, starting and construction power requirement at various voltage levels.	N	-	Y	Y
3	Single line distribution diagram (power, lighting, DC supply and UPS supply) including protection and metering details giving rating of each equipment.	N	Y	-	Y
4	Specification Sheets and Technical Particulars of Electrical Equipment	N	Y	-	Y
5	General arrangement and foundation drawings of all equipment.	N	-	Y	Y
6	Equipment layout in Sub Station, MCC room, and plant area showing location of all electrical equipment.	N	Y	-	Y
7	Civil scope drawing of Transformers, 415V switch boards, MLDB, Battery & Battery Charger, UPS and other substation equipment.	N	Y	-	Y
8	Cable schedule.	N	Y	-	Y
9	Cable rack / trench / pipe layout of substation and Plant.	N	Y	-	Y
10	Power Layout of Plant and Substation .	N	Y	-	Y
11	Schematic diagram for all control panel & switch boards.	N	Y	-	Y
12	Feeder Details of all switch boards	N	Y	-	Y
13	Interconnection & Terminal connection diagram	N	-	Y	Y
14	List of controls, interlocks, indication & metering at various locations for all drives.	N	-	Y	Y
15	Characteristic curves for motor/ relays etc.	N	-	Y	Y



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16	Sizing Calculations for Electrical System and Equipment.	N	Y	-	Y
17	Design calculations (for system design and equipment sizing, earthing & Lightning, lighting, cables, bus ducts etc.)	N	Y	-	Y
18	Earthing and lightning protection layout of substation and Plant	N	Y	-	Y
19	Lighting layout of substation and Plant with Distribution diagram	N	Y	-	Y
20	Drawings and documents asked for each equipment as per respective Technical Specifications	N	Y	-	Y
21	Control & operation write up/Block logic diagrams.	N	Y	-	Y
22	Catalogues for all bought out items	N	-	Y	Y
23	Bill of Materials covering all electrical equipment and installation materials	N	-	Y	Y
24	Installation operation and maintenance Manual	N	-	-	Y
25	Relay Co-ordination and settings	N	-	Y	Y
26	Spare Parts list	N	-	Y	Y
27	Test Certificates	N	-	Y	Y
28	Guarantee Certificates	N	-	Y	Y
29	Quality Assurance Plan & Formats	N	Y	-	Y
30	Hazardous area Classification Drawing	N	Y	-	Y
31	Erection Drawings & Details	N	Y	-	Y
32	Construction & Commissioning specification and procedure for all equipment.	N	-	Y	Y
33	Any other drawings & data as required for satisfactory installation, operation & maintenance.	N	Y	Y	Y
<b>F.</b>	<b>INSTRUMENTATION</b>				
1	Drawing & document schedule	--	Y	--	Y
2	Instrument Index	--	--	Y	--
3	Instrument sizing calculations (control vales, safety valves & flow elements)	--	--	Y	--



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4	Utility & Power requirements	--	--	Y	--
5	Level sketches	--	--	Y	--
6	Material Requisition	--	Y	--	Y
7	Purchase Requisition	--	--	Y	--
8	Vendor Drawings	--	--	Y	--
9	Functional Schematic	--	--	Y	--
10	Logic Diagrams as per ISA 75.2	--	--	Y	--
11	Instrument loop drawings	--	--	Y	--
12	Control room layout	--	Y	--	Y
13	IRP/IRC panel requirement at control room	--	Y	--	--
14	Layout of equipment inside control room	--	Y	--	Y
15	Power supply distribution	--	Y	--	Y
16	Wiring diagram for panels	--	--	Y	--
17	Configuration diagram	--	Y	--	Y
18	I/O assignment	--	Y	--	Y
19	DCS graphics, report/log formats & other DCS docs.	--	Y	--	Y
20	Instrument duct / tray layout	--	--	Y	--
21	Instrument Junction Box & cable schedule	--	--	Y	--
22	Instrument location plans	--	--	Y	--
23	Instrument installation drawings	--	--	Y	--
24	Bill of material for installation items	--	--	Y	--
25	Spare part list for :	--	--		--
	a. Mandatory Spares	--	--	Y	--



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	b. Start up & commissioning	--	--	Y	--
26	Inspection & test procedures	--	--	Y	--
27	Complete catalogues with part list for all vendor supplied instruments, control etc.	--	--	Y	--
28	Installation, operation & maintenance manuals	--	--	Y	--
29	As Built Drawings	--	--	Y	--
30	System Architecture	Y	--	Y	--
31	Instrument Control Philosophy	Y	--	Y	--
32	P & I Diagram	--	Y	--	--

**Note:-**

- a. Various Layout drawing for Substation indicated herein shall refers to Bagging, Urea Silo substation and Bagging MCC room, while plant indicated herein shall refers to complete urea handling & bagging package including Bagging building, Platform area, Transfer towers, Conveyor gantry etc.
- b. 3 hard copies & 1 soft copy shall be supplied for review/approval/information after order.

**LEGEND:** Y - Yes, N – No