

**INVITATION OF TENDER**

**FOR**

**DUST EXTRACTION SYSTEM,**


**DUST COLLECTORS & SCRUBBERS**

**AND**

**FILTER CLEANING SYSTEM**

Tender Document No.- GIA-016  
Tender Document Cost Rs. 1000./-

14-09-2013

 RDPL	<b>TENDER DOCUMENT FOR DUST EXTRACTION SYSTEM, SCRUBBER &amp; FILTER CLEANING SYSTEM</b>	<b>GIA - 016 Date : 14-09-2013 Version-02</b>
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**RAJASTHAN DRUGS & PHARMACEUTICALS LIMITED**  
Road No. 12, V.K. I Area, Jaipur- 302013 (Rajasthan) India  
**Ph: 0141-2330509, 2330110, Fax: 0141-2330461**  
**Email: [purchase@rdpl-india.in](mailto:purchase@rdpl-india.in)**

**TENDER FOR DUST EXTRACTION SYSTEM, DUST COLLECTORS &  
SCRUBBERS AND FILTER CLEANING SYSTEM**

Sealed tenders are invited for engineering, supply, erection and testing for dust extraction system, dust collectors & scrubbers and filter cleaning system as per WHO-GMP/GLP Standard. Interested parties may obtain tender documents with detailed specifications and commercial terms and conditions from manager (Materials) on any working day up to 05.10.2013 on payment of Rs. 1000/- (Rs. one thousand only) in cash/ Demand draft in favor of "Rajasthan Drugs & Pharmaceuticals Ltd." payable at Jaipur. Tender duly completed with requisite documents and earnest money of 1.00 lac rupees as Demand draft in favor of "Rajasthan Drugs & Pharmaceuticals Ltd." payable at Jaipur for Dust extraction system, dust collectors & scrubbers and filter cleaning system offered must reach the undersigned up to 3 PM on 07.10.2013. The technical bid shall be opened at 4.00 PM on the same day presence of representatives of the bidders if available. The date of opening of financial bid of the technically qualified bidders will be informed later on. The company reserves the rights to accept or reject any offer without assigning any reason. For further details, please visit our website: [www.rdpl-india.in](http://www.rdpl-india.in).

**Factory Manager**

**Date -14/09/2013**




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DUST EXTRACTION SYSTEM, SCRUBBER &  
FILTER CLEANING SYSTEM

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## **SECTION - 01**

### **SITE DATA**

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## 1.0 SITE DATA


1. OWNERS / PURCHASERS : **M/s. RAJASTHAN DRUGS & PHARMACEUTICALS LTD.  
Road No. 12, VKI Area,  
JAIPUR – 302 013**
2. PROJECT TITLE : Dust extraction system, Scrubber & filter cleaning system.
3. PROJECT SITE : JAIPUR
4. NEAREST RAILWAY STATION: JAIPUR
5. NEAREST AIRPORT : Sanganer, JAIPUR
6. CONDITIONS :
- TEMPERATURE
- SU : DB –110°F / WB- 75°F/RH 20%
- MO : DB –95°F / WB- 78°F/RH 48%
- WI : DB – 46°F / WB- 41°F/RH 65%



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**SECTION-02**  
**TENDER FORM**

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## **2.0 TENDER FORM**

**M/s. RAJASTHAN DRUGS & PHARMACEUTICALS LTD**  
**Road No. 12, VKI Area,**  
**JAIPUR- 302013**

**Subject:           Dust extraction system, Scrubber & filter cleaning system**

Dear Sirs,

I / We the undersigned have carefully gone through and clearly understood the Tender Document comprising the Tender Form, Notice to Contractors, Condition of Contract, Specifications and Schedule of probable Quantities prepared by you.

I / We hereby undertake to execute and complete the whole work at the respective rates at which I/ We have quoted for. I/We have quoted for all the items of the probable Bill of Quantities and at which rates the total value of the work specified amount to **Rs.** \_\_\_\_\_.

I / We further agree to complete the work included in the said Schedule of Quantities within \_\_\_\_\_ months from the date of Letter of Intent along with advance issued to commence the same.


I / We agree not to employ any Sub- Contractors or procure items other than those that may be approved by you.

I/ We agree to pay all Government (State and Central) Taxes and Duties, Insurance and any other statutory dues that may be prevailing and payable from time to time, on such items for which the same are leviable and rates quoted by me/ us are inclusive of the same.

NAME OF THE COMPANY

AUTHORISED SIGNATORY  
NAME AND SEAL OF THE COMPANY.


DATE: .....

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## **SECTION-03**

### **NOTICE INVITING TENDERS**



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### **3.0 NOTICE INVITING TENDERS.**

Sealed Items Rate tenders in two bids system are invited in the prescribed form by **RAJASTHAN DRUG & PHARMACEUTICALS LTD. JAIPUR**, for the work detailed below. Contractors, who have experience in carrying out Dust extraction system, Scrubber & filter cleaning system work of Pharma Factories shall be given preference.

Name of work	Estimated value of work (in lacs of Rs.)	Earnest Money (in lacs of Rs.)	Time of completion	Tender Cost
Dust extraction system, scrubber & Filter cleaning system	Rs.60 Lacs	1.00 lacs	4 months	Rs. 1000


The tender documents, Instructions to Tenders, Bill of quantities, Conditions of Contract, Technical Specifications can be collected from the office of **RAJASTHAN DRUG & PHARMACEUTICALS LTD. JAIPUR**, on payment of Rs.1000/- Rs. one Thousand only in cash or demand draft drawn in favor of the Company payable at Jaipur.

The Tenderer is required to deposit Rs.1.00 lac as Earnest Money along with the tender in shape of Bank draft drawn in favour of M/s **RAJASTHAN DRUG & PHARMACEUTICALS LTD.** Payable at **JAIPUR**, (Branch of any Public Sector Bank) The earnest money will be refunded to the unsuccessful tenderers without any interest / Bank Commission/Collection charges subject to the relevant provisions in the tender Document.

Dear Sirs,

**M/s. RAJASTHAN DRUGS & PHARMACEUTICALS LTD** propose to set up a new facility for manufacture of various pharmaceutical formulations to meet WHO GMP standards. The facility is located at: JAIPUR

The completed bid (Technical & Financial) in all respects with all its accompaniments shall be enclosed in two different sealed envelopes and hand delivered or sent by courier so as to reach on or before 07/10/2013 Up to 3.PM. Only the Technical bid shall be opened on 07/10/2013 at 4PM. Bidders who qualify in the technical bid shall be intimated the date & time of opening the financial bid. The representatives of bidders may remain present at the time of opening of tenders.

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The tender documents should be filled in English and all the entries must be made by hand and written in ink.

Initials of tenderer must attest all erasures and alteration made while filling the tender. Overwriting of figures is not permitted.

The tenderer must obtain for himself on his own responsibility and at his own expense all the information which may be necessary for the purpose of filling this tender and for entering into a contract for execution of the same and must inspect the site of the works and acquaint himself with all the local conditions and matters pertaining thereto.

In case where the same item of work is mentioned at one or more places in the Schedule of Quantities, the lowest of the rates quoted by the contractor for the item shall be taken for the payment of this item.

The quantities contained in the Schedule are only approximate. The work as actually carried out and measured from time to time will be considered for payments subject to the terms and conditions of the contract.


**Time being the essence of this Contract; the work should be completed in 4 months** from the date of the letter of the intent issued to the contractor to commence the work. The successful contractor will have to submit a bar chart for various items of work to be done so that the work gets completed within the stipulated time.

If the successful contractor fails to complete the work by the scheduled date of completion or within any sanctioned extension, liquidated damages at the rate of 0.5% per cent of the contract value per week of delay subject to a maximum of 5% of the total contract value shall be recovered from the contractors' bills.

The Company does not bind itself to accept the lowest bid and reserves the right to accept or reject any or all tenders either in whole or in part without assigning any reason for doing so. **The contract may be awarded either in part or full at the sole discretion of the Company.**


The offer should be valid for 60 days from the due date of submission.

(Sanjay Mishra)  
Manager(Materials)

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## **SECTION-04**

### **INSTRUCTIONS TO TENDERERS**

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## **4.0 INSTRUCTIONS TO TENDERERS**

### **01. TENDERER TO BE CONVERSANT WITH THE DOCUMENTS**

The tenderer is expected to read all the documents hereof and be conversant with their contents and when tenders are signed it will be understood and inferred that all the documents have been read and understood. Any difficulty experienced in interpreting the documents may be communicated to the Company in writing, and, should any written clarification be required it will be made available to all tenderers. No extra cost will be entertained because of the tenderers mistakes, ignorance or misinterpretation of drawing and documents.

### **02. ADDENDA**

Addenda may be issued prior to the date set for submission of tenders to clarify the documents or to effect modifications in the Dust extraction system, Scrubber & filter cleaning system, contract terms or design of the project.


### **03. VISIT TO SITE**

The tenderers should visit the site and satisfy themselves as to the accessibility thereof, the local conditions, the construction and occupation of the building, the full extent and nature of the operations, the conditions affecting the supply of labour, carriage, carting, unloading, storage and safe custody of materials, scaffolding, tackle and tools, supply of light, power and water for the execution of the Dust extraction system, Scrubber & filter cleaning system, Contract generally. Claims on grounds of want of knowledge in such respects or otherwise shall not be entertained.

### **04. SPECIFICATIONS**

The tenderer will, before tendering, carefully examine all specification forming part of tender and should any technical or other discrepancy appear, he will immediately inform the Company to obtain his ruling.

The tenderer shall carefully check the size of the plant rooms, and confirm that his equipment, piping, ducting, wiring, etc. can be installed in the space allocated for the same.

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**05. WORKING DRAWINGS**

The tenderer is to include for the preparation of all working drawings (shop drawings), which will be required for the proper execution of the works. All working drawings shall be submitted to the Company for approval before executing the work.

**06. FINAL AS INSTALLED DRAWINGS**

After completion of the installation, the Dust extraction system, Scrubber & filter cleaning system Contractor is to provide tracings and five hard copies each of drawings showing runs and locations of all the plant, equipment, controls, piping, ducting, electric wiring, etc. giving all necessary details of the works as actually installed as well as soft copy.


**07. INCLUSIONS AND INCIDENTALS**

the Dust extraction system, Scrubber & filter cleaning system Contractor will include for providing materials and incidentals, which may be inferred from drawings and / or specifications, in order to ensure a complete and perfect installation although, same may not be expressly indicated or mentioned.

**08. ELIGIBILITY CRITERIA**

- (a) Bidder should have minimum three years experience in executing similar jobs preferably in Pharma formulation unit.
- (b) Bidder should have executed minimum 30 lacs (Single project) Of Dust extraction system, Scrubber & filter cleaning system preferably in Pharma formulation unit OR Bidder to have supplied minimum 10 dust collectors / 2 filter cleaning systems & 5 scrubbers for coating applications for a pharmaceutical industry

**All above documents must be submitted along with technical bid. Non submission of any of above documents may lead to the rejection of the tender.**

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## 9. DOCUMENTS TO BE SUBMITTED ALONG WITH TECHNICAL BID

- (a) Technical bid shall be submitted separately for each of the item viz. Dust extraction system, Scrubber & filter cleaning system, filter cleaning system & wet scrubber system.
- (b) In technical bid supplier has to mention the details like principal, BOQ with technical details (Make / model / sub equipment's / parts to be calibrated etc.)
- (c) Demand draft of Rs. 1.00 Lac as earnest money. Earnest Money (interest free) deposit of Rs. 1.00 lac through D.D. in favour of Rajasthan Drugs & Pharmaceuticals Limited payable at Jaipur.
- (d) Last Three years balance sheet, income-tax returns of last three years.
- (e) BIO DATA of Proprietors or Directors and Key Persons of the Firm.
- (f) Number of projects executed during last 3 years, Monetary value of each project, Address of the companies or firms where these projects have been executed, name and contact telephone numbers of the dealing persons there of preferably.
- (g) Satisfactory execution and performance report from the clients as above.
- (h) Deviation sheet

**All these documents must be submitted along with technical bid.**

**Non submission of any of above documents may lead to the rejection of the tender.**


## 10. Documents to be submitted along with financial bid:

- (a) Tender form as per the format given in section 2
- (b) Bill of Quantities with rates (BOQ).
- (c) Payment terms

## 11. SPECIFICATIONS

The Dust extraction system, Scrubber & filter cleaning system Contractor shall execute the works with materials in accordance with the specifications or if not specified, in accordance with the latest Indian /International Standards.

The specifications are to be read in conjunction with the latest relevant Indian / International Standards & Where differences or contradictions appear to arise between the Indian & International specifications these differences or contradictions shall be referred to the Company.

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**12. TRAINING OF COMPANY'S STAFF**

The Dust extraction system, Scrubber & filter cleaning system Contractor shall make suitable arrangements at his own cost to prepare SOP's and train the operational and maintenance staff of the Company during the installation and maintenance periods according to the conditions of the Dust extraction system, Scrubber & filter cleaning system Contract for operation/preventive maintenance/troubleshooting etc.

**13. INSPECTION**

The Company reserves the right to arrange inspection of all the items prior to their shipment through an inspector appointed by it. The inspection charges will be borne by the Company unless otherwise stated. The tenderer need not, unless otherwise stated, make any provision for the Inspector's fee in his tender. The Company shall, however, not pay anything extra to the Dust extraction system, Scrubber & filter cleaning system Contractor or his suppliers for any expense in connection with the inspection.

**14. PRICES**

The Tenderer shall give a firm price for the supply of all materials (free delivery at site) and the cost of fabrication, installation, testing etc. to complete the works in working order in all respects.


The Dust extraction system, Scrubber & filter cleaning system Contractor shall be responsible, without additional charge to the Company, for a maintenance period of 12 calendar months from the date of issue of completion certificate by the Company.

**16. TAXES & DUTIES**

The bidder has to quote for the price inclusive of all taxes & duties applicable as on date, including local & central sales tax (against C Form), Excise duty, any applicable Import duty, Service tax, etc. Company will furnish you necessary C Forms as per CST Act. However the break-up of such taxes & duty shall have to be furnished.

**17. INSURANCE AND INDEMNIFICATION**

Bidders shall take adequate comprehensive insurance to cover all Dust extraction system, Scrubber & filter cleaning system equipment, materials, installation, personnel's, etc. till the completion of the project and indemnify RDPL against any damage, loss, claims or liabilities, 3<sup>rd</sup> party

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damages, etc. that may arise due to any cause whatsoever till the entire Dust extraction system, Scrubber & filter cleaning system on completion is taken over by the Company. Cost of insurance is to be inclusive in your order value. Thus, the bidder will hold RDPL free from any liability in this regard and also shall keep RDPL harmless and indemnified.

## 18. ACCEPTANCE

Promptly after receiving of all tenders, the Company will undertake a detail study of the technical bids & only bidders who qualify in the technical bid, their financial bid shall be opened. The date of financial bid opening shall be communicated to the bidders who qualify in the technical bid. The bidders who fail to qualify in the technical bid, their financial bid shall not be opened. The Company does not bind itself to award the Dust extraction system, Scrubber & filter cleaning system Contract to the lowest or to any tenderer but will take into careful consideration the tenderer's price and such other factors as are deemed to be applicable for awarding the contract. After reviews of technical bids and negotiations, if the company feels need of up gradation of technical requirements, the same shall be circulated to all suppliers and fresh commercial bids shall be invited against the new technical specifications.

## 19. RIGHTS


The Company reserves the right to re-call the tender or, reject any or all tenders and to waive any formalities in the tenders received (such as deviation in the use and presentation of the specified tender documents and forms), if it appears to be in his best interest to do so.

The tender documents, drawings and specifications are the exclusive property of the issuing authority and are subject to be recalled and shall not be used, lent, copied or reproduced by anybody without their written permission.

## 20. EQUIPMENT AND MATERIAL

the Dust extraction system, Scrubber & filter cleaning system Contractor shall give written guarantee that all the equipment and material supplied under the Dust extraction system, Scrubber & filter cleaning system Contract shall be brand new from the manufacturer and that, the materials and workmanship will be of best class as per international/Indian standards, calibrated (if applicable), with MOC certificates. It will further be guaranteed that these shall be installed in first class manner, that it will be complete for operation and nothing shall be omitted by way of labour and material required to make it so, even though not specifically shown or mentioned in the specifications or in the drawings.



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the Dust extraction system, Scrubber & filter cleaning system Contractor shall execute the works with the materials in accordance with the specifications. All materials, which in the opinion of the Company are not sound or do not meet with the above conditions, shall be immediately dismantled and/or removed from site by the Dust extraction system, Scrubber & filter cleaning system Contractor and replaced by appropriate approved materials without claim of any extra payment.

21. **ONSITE MAINTENANCE GUARANTEE/ CONTRACT**

For three years effective from the final approval date of certificate of completion.

**Note: -**

A) For any technical clarifications, bidders may e-mail-  
mukesh.sharma@rdpl-india.in

**For, Rajasthan Drugs & Pharmaceutical Ltd.,**

Factory Manager

ABOVE TERMS ARE ACCEPTED

(Signature of Tenderer /Supplier)  
With rubber stamp

Date: -




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**SECTION-05**

**DUST EXTRACTION SYSTEM, SCRUBBER &**  
**FILTER CLEANING SYSTEM-**  
**CONTRACT CONDITIONS**

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## **5.Dust extraction system, Scrubber & filter cleaning system–contract condition**

### **01. EXTENT OF Dust extraction system, Scrubber & filter cleaning system CONTRACT**


the Dust extraction system, Scrubber & filter cleaning system Contract comprises the feasibility study, design with risk analysis and WHO-cGMP consideration, manufacture, supply, fabrication, installation, completion, testing, commissioning, validation, documentation of complete Dust extraction system, Scrubber & filter cleaning system works including supply of all materials, plant and equipment as per requirements of design contained in the Dust extraction system, Scrubber & filter cleaning system Contract, specifications and documents. In summary the contract for Dust extraction system, Scrubber & filter cleaning system, scrubber & filter cleaning system shall be complete turnkey project.

### **02. DUST EXTRACTION SYSTEM CONTRACT DOCUMENTS**

the Dust extraction system, Scrubber & filter cleaning system Contract shall be read, construed and interpreted in English language and shall operate in conformity with the laws of India and within the jurisdiction of the courts in Jaipur.

Several documents forming the Dust extraction system, Scrubber & filter cleaning system Contract shall be taken as self explanatory, but in case of ambiguities or discrepancies, the same shall be explained and interpreted by the Company who shall thereupon issue to the Contractor, instructions directing the manner, in which the Dust extraction system, Scrubber & filter cleaning system works are to be carried out.

Two set of the approved qualification documents, Drawings and other relevant documents shall be kept by the Contractor on the site and the same shall at all reasonable times be available for inspection and use by the Company/Company's Representative and by any other person authorised by the Company and same shall be submitted in soft as well as in hard copies.

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the Dust extraction system, Scrubber & filter cleaning system Contractor shall prepare at his own expense any shop drawing/s which will be required for the proper execution of the works.

None of the documents herein before mentioned shall be used by either of the parties hereto for any purpose other than this Dust extraction system, Scrubber & filter cleaning system Contract and neither shall divulge or use, except for the purpose of this Dust extraction system, Scrubber & filter cleaning system Contract, any information in the schedule of prices and rates.

The Dust extraction system, Scrubber & filter cleaning system Contractor shall retain in his office all necessary drawings; data for the Dust extraction system, Scrubber & filter cleaning system work.

A proper document control system must be followed by supplier for all documents such as drawings, minutes of meetings, inspections, SOP's, trainings etc.


### **03. GENERAL OBLIGATIONS**

the Dust extraction system, Scrubber & filter cleaning system Contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender and the rates and prices shall cover all his obligations under the Dust extraction system, Scrubber & filter cleaning system Contract and all matters and things necessary for proper completion and maintenance of the Dust extraction system, Scrubber & filter cleaning system works.

### **04. PROGRAMME OF WORKS**

the Dust extraction system, Scrubber & filter cleaning system Contractor shall, within ten days after the acceptance of his tender, submit in writing, for approval of the Company, a program of works coordinated with the HVAC work, in the form of a bar chart showing the order of procedure and method in which he proposes to carry out the Dust extraction system, Scrubber & filter cleaning system work.

The program shall cover the full period of works from the date of the acceptance of the tender to the completion of installation, testing, and validation and handing over of the complete plant in working order. The program shall cover the sequence of work for all items showing separately in each case the time allowed for manufacturing, shipment,

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fabrication, delivery to site, installation, testing, commissioning and starting up.

The program submitted by the Dust extraction system, Scrubber & filter cleaning system Contractor may be amended if any part of it is not to the satisfaction of the Company and it shall not be carried into effect until it has been approved (in an amended form, if necessary) by Company.

If the Company under the provision of this clause require the Dust extraction system, Scrubber & filter cleaning system Contractor to amend his program of works, the Dust extraction system, Scrubber & filter cleaning system Contractor shall not thereby be entitled to any adjustment in the Dust extraction system, Scrubber & filter cleaning system Contract price or to any extension of time.

The submission to or approval by the Company of such program or the furnishing of such particulars or information shall not relieve the Dust extraction system, Scrubber & filter cleaning system Contractor of any of his duties or responsibilities under the Dust extraction system, Scrubber & filter cleaning system Contract.


After LOI/order, following document formats has to be submitted for approval to company within 10 days, in soft as well as hard copy:-

- Design qualification
- Factory/Site acceptance test
- Installation qualification
- Operational qualification
- Performance qualification  
(Protocols/ reports)

## **05. DELAYS AND EXTENSION OF TIME**

If in the opinion of the RDPL the works are delayed or are expected to be delayed because of any of the following reasons, the completion period may be extended by such period as may be mutually agreed upon:

- a) Force majeure (Including war, hostilities, invasion, act of foreign enemies, military or usurped power or civil war);
- b) By reason of any exceptionally inclement weather (if acceptable to the Company), flood, tornadoes, earthquakes and landslides;

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- c) By reason of proceedings taken or threatened by or dispute with adjoining or neighboring owners or public authorities arising otherwise, through the Contractor's own default.
- d) By the work's or delays of other contractors or tradesman engaged or nominated by the owner and not referred to in the Schedule of Quantities and / or specifications.
- e) By reason of civil riot, commotion, local combination of workmen or strike or lockout affecting any of the works / trades.
- f) By reason of owner instructions.


If and whenever it becomes reasonably apparent to the Contractor that the progress of work is being, or is likely to be delayed, due to reasons not attributable to them, they shall forthwith give written notice to the Owner explaining the circumstances including the cause or causes of such delay. Where the cause or causes of delay refers to any agency other than the Contractor, a copy of such notice shall be sent to them also.

**06. PENALTY / DAMAGES FOR DELAY**

If the Dust extraction system, Scrubber & filter cleaning system Contractor fails to complete the works within the schedule agreed upon, or within such extensions that may be granted to him pursuant to Clause 05 above, then the Company will be at liberty to deduct from the Contractor's bills, by way of penalty a sum equivalent to 1/2 % of the value of the contract for each week's delay subject to a maximum of 5% of the value of the contract. The Company may without prejudice to any other method of recovery deduct the amount of such damages from moneys in his hands due to or which may become due to the Dust extraction system, Scrubber & filter cleaning system Contractor from his obligation to complete the works or from any other of his obligation and liabilities under the Dust extraction system, Scrubber & filter cleaning system Contract.

**07. DUST EXTRACTION SYSTEM UNDER CONTRACTOR'S SUPERINTENDENCE**

the Dust extraction system, Scrubber & filter cleaning system Contractor shall give or provide all necessary superintendence for the proper fulfilling of the Dust extraction system, Scrubber & filter cleaning

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system. Contractor's obligations under the Dust extraction system, Scrubber & filter cleaning system Contract.

A competent and duly authorized representative of the Dust extraction system, Scrubber & filter cleaning system Contractor and who shall have full authority to act for and bind the Dust extraction system, Scrubber & filter cleaning system Contractor, is to be constantly at the site of works and shall give his whole time to the superintendence of the Dust extraction system, Scrubber & filter cleaning system works.


The representative shall receive on behalf of the Dust extraction system, Scrubber & filter cleaning system Contractor directions and instructions from the Company.

the Dust extraction system, Scrubber & filter cleaning system Contractor shall provide and employ on the site for the purpose or in connection with the Dust extraction system, Scrubber & filter cleaning system Contract, only such Engineers, Supervisors, Technical Assistants as are skilled and experienced in their respective callings and are competent to give proper supervision to the work they are required to supervise, and, such skilled, semi – skilled and un-skilled labor as are necessary for the proper and timely performance of the Dust extraction system, Scrubber & filter cleaning system Contract.

The Company shall be at liberty to object to and require the Dust extraction system, Scrubber & filter cleaning system Contractor to remove forthwith from the site any persons employed by the Dust extraction system, Scrubber & filter cleaning system Contractor or any Sub – Contractor who in the opinion of the Company misconducts himself or is incompetent or negligent in the proper performance of his duties or whose employment is otherwise considered by the Company to be undesirable. Such person shall not be again employed for the purpose of or in connection with the Dust extraction system, Scrubber & filter cleaning system Contract without the written permission of the Company. Any person so removed shall be replaced immediately by a competent substitute approved by the Company.

## **08. WATCH & CARE OF WORKS**

Except as otherwise specifically provided in the Dust extraction system, Scrubber & filter cleaning system Contract the Dust extraction system, Scrubber & filter cleaning system Contractor shall make all

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arrangements for the security and protection of persons and property or for the safety or convenience of persons as is necessary or as required by the Company.

From the commencement to the completion of the works, the Dust extraction system, Scrubber & filter cleaning system Contractor shall take full responsibility for the care of all temporary works, materials, constructional plant and other things on the site. In case any damage, loss or injury shall happen to the works or any such materials or constructional plant or other things from any cause whatsoever (save and except the excepted risks like out – break of war or act of invasion), he shall at his own cost, replace, repair and make good the same. It is to be ensured that at completion, the works shall be in good condition and in conformity in every respect with the requirements of the Dust extraction system, Scrubber & filter cleaning system Contract.

The Dust extraction system, Scrubber & filter cleaning system Contractor shall indemnify and keep indemnified the Company against all losses and claims for injuries or damage to any person or any property whatsoever which may arise out of or in consequence of the performance of the Dust extraction system, Scrubber & filter cleaning system Contract and against all claims, demands, proceedings, damages, costs, charges and expenses, whatsoever in respect of or in relation thereto.


**09. COMPLIANCE WITH STATUTES, REGULATIONS, ETC.**

DUST EXTRACTION SYSTEM Contractor shall conform in all respects with the provisions of all requirements, local laws, regulations or orders or other laws for the time being in force including all regulations and bylaws of local or other duly constituted authority which may be applicable during the pendency of the contract. indemnified against all penalties and liabilities of any kind and in any form.

**10. SUPPLY OF PLANT, MATERIALS AND LABOUR**

Except where otherwise specified the Dust extraction system, Scrubber & filter cleaning system Contractor shall at his own expense and risk, supply and provide all the constructional plant, temporary works, scaffolding materials both for temporary and for permanent work, labor (including the supervision thereof), transport to and from the site and in and about the site and other things of every kind required for the



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purpose of or in connection with the Dust extraction system, Scrubber & filter cleaning system Contract.

#### **11. CO – ORDINATION WITH OTHER CONTRACTORS**

The supplier shall coordinate with all contractors which are directly or indirectly related to execution/completion of assigned work, specially the supplier must coordinate with the HVAC contractor.

#### **14. WORKS NOT INCLUDED AND FACILITIES PROVIDED BY OTHERS**

The Company will not be under any obligation to provide equipment, stores, office, etc. to the Dust extraction system, Scrubber & filter cleaning system Contractor for the Dust extraction system, Scrubber & filter cleaning system works installation.


However, Company shall at his own discretion arrange open space at site for Dust extraction system, Scrubber & filter cleaning system Contractor to have his office, stores and workshop constructed by himself. The Company shall also arrange the following facilities or works to him for proper execution of Dust extraction system, Scrubber & filter cleaning system works.

#### **GENERAL**

The Company will provide at his cost temporary water and electrical points within a reasonable distance from the Dust extraction system, Scrubber & filter cleaning system Contractors place of Work. The Dust extraction system, Scrubber & filter cleaning system Contractor shall arrange his own distribution of facilities for lighting, power for tools and welding equipment and water for testing from these points. The Company will provide temporary lighting for safety and security only.

The Dust extraction system, Scrubber & filter cleaning system Contractor will be responsible for the provision and erection of all scaffolding, etc. required by him during the course of the Dust extraction system, Scrubber & filter cleaning system works. However, the erected scaffolding, if not in use of any other contractor the same can be used by the Dust extraction system, Scrubber & filter cleaning system Contractor with the written permission of the relevant contractor/ Company.

The Dust extraction system, Scrubber & filter cleaning system Contractor will be responsible for the removal and transport of all his

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rubbish, wrappings, waste and unused materials, etc. every day to a place to be designated by the Company.

The Dust extraction system, Scrubber & filter cleaning system Contractor will be responsible for those safety regulations, Which, are directly under his control. The Dust extraction system, Scrubber & filter cleaning system Contractor will be held responsible for his own safety regulations. Limited First Aid facilities may be provided on site by the Company and can be made available to the Dust extraction system, Scrubber & filter cleaning system Contractor at cost.


Any damage caused by the Dust extraction system, Scrubber & filter cleaning system Contractor to works of other trades, shall be the sole responsibility of the Dust extraction system, Scrubber & filter cleaning system Contractor. He shall take full precautions to prevent such happenings.

**15. LABOUR LAWS.**

The Dust extraction system, Scrubber & filter cleaning system Contractor shall, in relation to the works executed under this contract, strictly comply with the provisions of all current labor laws and statutory amendments or additions thereof and any regulation or orders made there under affecting the works. Any liability arising out of engagement of any persons to execute the works under this contract by the Contractor and falling on the Company later on shall be liable to be paid by the contractor to compensate the Company adequately.

**16. CERTIFICATE OF COMPLETION**

No certificate of completion shall be given nor shall the work be considered to be complete until the Dust extraction system, Scrubber & filter cleaning system Contractor shall have removed from the premises on which the work has been executed, all scaffolding, surplus materials and rubbish and cleaned off the dirt, from those parts of the building where the work has been executed or of which he may have had possession for the execution thereof, nor until the work shall have been measured and recorded by Company and checked by the Company which measurement shall be binding and conclusive for the Dust extraction system, Scrubber & filter cleaning system Contractor. If the Dust extraction system, Scrubber & filter cleaning system Contractor shall fail to comply with the requirements of this clause as to removal of scaffolding etc. and cleaning off the dirt on or before the date of

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completion of works, the Company may at the expense of the Dust extraction system, Scrubber & filter cleaning system Contractor remove and dispose off such scaffolding, etc. and clean off such dirt as aforesaid and the Dust extraction system, Scrubber & filter cleaning system Contractor shall forthwith pay to the Company the amount of all expenses so incurred and the said amount shall be adjusted from the amount due to the Dust extraction system, Scrubber & filter cleaning system Contractor from the Company and the Dust extraction system, Scrubber & filter cleaning system Contractor shall have no claim in respect of such scaffolding and surplus materials as aforesaid.

#### 17. (A) VARIATIONS

The Dust extraction system, Scrubber & filter cleaning system Contractor shall not make any variation in the works except in accordance with a written variation order.

The Company may make any variation of the form, quality or any part thereof as he may think necessary and for that purposes, by a written variation order, may order the Dust extraction system, Scrubber & filter cleaning system Contractor to do and the Dust extraction system, Scrubber & filter cleaning system Contractor shall do any of the following :-

Increase or decrease the quantity of any Dust extraction system, Scrubber & filter cleaning system works included in the Dust extraction system, Scrubber & filter cleaning system Contract.


Omit any such Dust extraction system, Scrubber & filter cleaning system works.

Change the levels lines position and dimensions of any part of the Dust extraction system, Scrubber & filter cleaning system Works.

Change the character or quality or kind of any such DUST EXTRACTION SYSTEM works.

Execute additional or substituted work of any kind necessary for the completion of the Dust extraction system, Scrubber & filter cleaning system Works.

No variation order shall in any way vitiate or invalidate the Dust extraction system, Scrubber & filter cleaning system Contract but shall be taken into account in ascertaining the Dust extraction system, Scrubber & filter cleaning system Contract price.

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For the removal of doubt, it is declared that any increase or decrease of the estimate quantities set out in the schedule of prices ascertained by measurement is not a variation within the meaning of this clause.

The Company shall determine what adjustment (if any) in the Dust extraction system, Scrubber & filter cleaning system Contract price shall be made in respect of work done or omitted pursuant to a variation order. All such work shall be valued at the rates and prices set out in the schedules of prices and item rates if in the opinion of the Company the same shall be applicable. If the schedule of prices and item rates do not contain any rate or price applicable to such work, then suitable rates and prices based upon the rates and prices contained in the schedules of prices and item rates and based on the then prevailing market rates shall be agreed upon between the Company and Dust extraction system, Scrubber & filter cleaning system Contractor.

**21. PERFORMANCE BANK GUARANTEE**


The Dust extraction system, Scrubber & filter cleaning system contractor shall submit a performance bank guarantee issued by a PSU Bank in favour of company for a value equivalent to 10% of the aggregate value of contract before the date of completion of the entire works as per contract awarded, to enable the company to have smooth and trouble free operation and running of the whole of Dust extraction system, Scrubber & filter cleaning system systems installations as agreed upon to its entire satisfaction with validity for atleast one year from the date of certification of commissioning of the system.

**22. PROPOSED TERMS OF PAYMENT**

We have considered DIVISIBLE CONTRACT for execution of the project. This means company will place two separate orders to the successful bidder. One for the supply of the items ( Specified in schedule A of Bill of Quantities ) & the second order for the site fabrication & erection (Specified in Schedule B) of Bill of Quantities  
DUST EXTRACTION SYSTEM contractor should specify his terms of payment. The terms of payment shall be finalized at the time of negotiation.

**General:**

- 1) At the time of submission of invoices following documents need to be submitted for settlement of any claim as per the payment terms
  - a) Invoices to be submitted in original plus two extra copies.

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- b) Excise Gate passes for RDPL to be able to claim cenvat benefit as per cenvat rules.
- c) Copies of Challans of materials received at site by the Officer-in-charge of RDPL duly certified as approved.

**2) Special Conditions**

- a) For all the excisable goods, RDPL will claim the Cenvat benefit. All the gate passes required under the provisions of Central Excise Rules and Cenvat Credit rules for the relevant items should be in the name of RDPL. In absence of any documents required for Cenvat credit, no excise payments against the bills submitted by Dust extraction system, Scrubber & filter cleaning system contractor shall be made.
- b) The rate of excise duty and its value for each item should be indicated separately & will be one of the criteria for evaluating the tender.
- c) The rates of service tax wherever applicable & quantum included in the tender should be indicated separately. The quantum of VAT on item-wise basis, along with its rate should be indicated separately.


**23. TRAINING OF COMPANY'S PERSONNEL**

The Dust extraction system, Scrubber & filter cleaning system Contractor shall make suitable arrangements at his own cost to train the operational and maintenance staff of the Company during the installation and maintenance period. The Dust extraction system, Scrubber & filter cleaning system Contractor shall if so desired by the Company, also arrange training facilities at his manufacturers / supplier's offices and factories from whom the equipment and materials for the works are procured without any charge to the Company for the training facilities, except for salaries, traveling and living expenses of the Company's personnel which expenses shall be borne by the Company.

**24. GUARANTEE**

The Dust extraction system, Scrubber & filter cleaning system Contractor shall give a guarantee for the complete installation against defective materials and faulty workmanship for a period of one year from the date of issue of certificate of virtual completion by the Company. All defects of material or workmanship found in the installation during the period of guarantee/ maintenance shall be removed and defective items replaced or repaired by the Dust extraction system, Scrubber & filter cleaning system Contractor without any additional cost to the Company.

In the event of any defect of material or workmanship occurring or being discovered during the period of guarantee / maintenance, the period

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shall continue until the cause of the defect has been discovered and remedied to the satisfaction of the Company.


**25. DRAWINGS & INFORMATION TO BE SUPPLIED.**

The Dust extraction system, Scrubber & filter cleaning system Contractor when preparing any detailed working drawing shall carefully check for all clearances, field conditions, and avoidance of any hindrance with architectural features and proper co-ordination with all other services of the project. Each working drawing submitted by the Dust extraction system, Scrubber & filter cleaning system Contractor shall include a certificate by the Dust extraction system, Scrubber & filter cleaning system Contractor that all related conditions on the site relevant to that particular installation have been checked and that no conflict exists. The Company may not approve any working drawing submitted by the Dust extraction system, Scrubber & filter cleaning system Contractor without such a certificate.

Manufacturer's performance data, test certificates and shop drawings of all main items of the plant giving complete information regarding dimensions, materials and other details regarding the adequacy of the equipment to be supplied shall be submitted to the Company for approval. During design of the Dust extraction system, Scrubber & filter cleaning system proper hood design should be considered as per the relevant production equipments design and respective dust generating point of the same.

All working drawings prepared in the required scale, correct and conforming with the Dust extraction system, Scrubber & filter cleaning system Contract requirements, shall be submitted to the Company sufficiently in advance of actual requirements to allow ample time for checking and approval and no claim for extension of the Dust extraction system, Scrubber & filter cleaning system Contract time will be considered by reasons of the Dust extraction system, Scrubber & filter cleaning system Contractor failure to submit the correct drawings in time. The Dust extraction system, Scrubber & filter cleaning system Contractor will submit 5 copies of final corrected drawings for approval out of which 2 duly approved copies would be returned to him ( also the soft copy of same).

The Dust extraction system, Scrubber & filter cleaning system Contractor shall clearly point out the difference, if any between the details submitted and the requirements of the Dust extraction system, Scrubber & filter cleaning system Contract in covering letters sent with

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the submitted documents and drawings. He should also give reasons for his request for substitution so that if substitutions are acceptable, necessary action may be taken for proper adjustment. The Dust extraction system, Scrubber & filter cleaning system Contractor will not otherwise be relieved of his responsibility for executing the works in accordance with the terms of the Dust extraction system, Scrubber & filter cleaning system Contract.

The Dust extraction system, Scrubber & filter cleaning system Contractor shall supply five sets of, as fitted drawings and manufacturer's installation, commissioning, operation, services and maintenance manuals, technical catalogues and detail spare part manuals for the guidance of the Company's operators in operation, servicing and maintenance of the plant. One set shall be supplied to the Company for scrutiny and approval.

The approval by the Company for any submitted data, working drawings, performance curves, test certificates for any item, arrangement or layout shall not relieve the Dust extraction system, Scrubber & filter cleaning system Contractor from responsibility of error of any sort in the submitted data and working drawings.

**26. NOTICES**


Notices for the Company or the Contractor may be served personally or being left at or sent through courier to the last known address of the party to whom the same is to be given or in the case of the Contractor by being handed over to his representative at the works site.

**27. TERMINATION OF CONTRACT BY THE COMPANY**

If the contractor be adjudged as Insolvent or shall have an order for compulsory winding up made against it and if the Contractor is unable to show to the reasonable satisfaction of the Company that he is able to carry out and fulfil the contract and to give security thereof or has failed to commence the works, or has without sufficient and lawful excuse suspended the progress of work for 14 days after receiving written notice from the Company to proceed or has persistently neglected or defied Company instructions then the Company reserves his right to terminate the contract out rightly & protect all its interests.

**28. SETTLEMENT OF DISPUTE (ARBITRATION)**

All disputes and differences of any kind whatever arising out of or in connection with the contract or the carrying out of the works, whether

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during the progress of the works or after their completion and whether before or after the determination or breach of the contract, shall be referred to INTERNATIONAL CENTRE FOR ALTERNATIVE DISPUTE RESOLUTION having its office at plot no.6 ,vasant kunj institutional area , phase –ii ,New Delhi-110070 and its decision/ award shall be binding on both the parties.

In case either party fails to accept the award of the arbitrator the other party may refer the matter to the court of law having jurisdiction at Jaipur only.

## 29. DEFINITION & INTERPRETATION

In constructing the Dust extraction system, Scrubber & filter cleaning system Contract, these conditions, Dust extraction system, Scrubber & filter cleaning system Contract agreement and the interpretations of the following words and expressions shall have the meaning herein assigned to them except where the subject or context otherwise requires.


**“Company** means **M/s. RAJASTHAN DRUGS & PHARMACEUTICALS LTD** and includes their administrative and legal representative, assigns or successors.

**“DUST EXTRACTION SYSTEM CONTRACTOR”** means the tenderer whose tender has been accepted and who has been nominated by the Company and shall include his legal and personal representative (s), successors and permitted assigns.

**“DUST EXTRACTION SYSTEM CONTRACT”** means the agreement contained in the Dust extraction system, Scrubber & filter cleaning system Contract agreement and the documents set out in the Dust extraction system, Scrubber & filter cleaning system Contract agreement as forming part thereof.

**“SITE”** means the site or the Dust extraction system, Scrubber & filter cleaning system works and the lands, otherwise places buildings and erections thereon, under, in or through where the Dust extraction system, Scrubber & filter cleaning system works are to be executed or carried out and any other land (inclusively) as aforesaid allotted by the Company to the Dust extraction system, Scrubber & filter cleaning system Contractor’s use.



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“APPROVED FOR CONSTRUCTION” means approved in writing including subsequent written confirmation of previous oral approval.


“MONTH” means a Calendar month.

The singular includes the plural and vice versa. The masculine includes the feminine and vice versa. Words importing persons include firms, companies or other bodies corporate.

“TEMPORARY WORKS” means all temporary works of every kind required in or about the execution, completion or maintenance of Dust extraction system, Scrubber & filter cleaning system works.


“DUST EXTRACTION SYSTEM DRAWINGS” means the drawing & referred to in these specifications and any modification of such Dust extraction system, Scrubber & filter cleaning system drawings approved in writing by the Company and such other drawings as may from time to time be furnished or approved by the Company.

“CONSTRUCTIONAL PLANT“ means all appliances or things of whatsoever nature required in or about the execution, completion or maintenance of the Dust extraction system, Scrubber & filter cleaning system works or Temporary works but does not include materials or other things intended to form or forming part of the permanent works.

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**SECTION 6**

**SPECIAL CONDITIONS OF CONTRACT**

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## **6.0 SPECIAL CONDITIONS OF THE CONTRACT**

### **6.1 QUALIFICATIONS OF SYSTEMS:**


1. DESIGN QUALIFICATION: The supplier has to be do the project feasibility study at site and on the basis of the same, he shall prepare the draft copy of design qualification(DQ) considering to all WHO-cGMP requirements as well as risk analysis. The draft copy of DQ has to be submitted to the company in soft and hard copy for review and approval.  
*Special Condition: The bidder has to study the condition at site and accordingly the cfm of blower may be increased or decreased to get the performance of the system.*  
*Special requirement: The suitable MOC has to be taken in consideration for corrosion prone areas like oral rehydration salt manufacturing and packing.*

2. DUST EXTRACTION SYSTEM contractor shall be responsible for doing installation qualification (IQ), operational qualification (OQ), and performance qualification (PQ) tests on all equipment related to Dust extraction system, Scrubber & filter cleaning system system installed by him including Company-supplied items. He shall prepare & submit FAT & SAT, IQ, OQ, and PQ protocols in line with approved DQ for approval and conduct tests as per the approved protocols. The complete IQ, OQ, and PQ documents with all test result and certification shall be submitted as part of final documentation for handling over.

The contractor shall arrange to carry out various initial tests as detailed below in the presence of and to complete satisfaction of the Company or his representative. Any defects or shortcomings found during the tests shall be speedily rectified or made good by the Contractor at his own expenses.

The initial tests shall include but not be limited to

- i) Test and check the proper functioning and settings of switchgear, starters, contactors, safety controls and electrical motors etc., to ensure their proper functioning.
- ii) Check the system against leaks in different circuits, alignment of motors, control setting and all such other tests, which are essential for smooth functioning of the plant.

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- iii) Operate and check the proper functioning of all components
- v) Check air exhaust and provide design air flow in all areas by adjusting the Dampers specifically shown on the drawings or not.
- vi) Check the performance of the equipment for 36 hours.
- vii) The test performed in the above manner, shall be concluded with reports specifying completeness of all supplied equipment's.

The entire Dust extraction system, Scrubber & filter cleaning system system documentation will be divided in following parts and relevant documentation to be furnished by Vendor are listed below, but not limited to the list:-

(A) **Design Qualification** – Minimum 3 sets of Approved drawing:


- 1. P &ID.
- 2. Electrical Circuits Diagram.
- 3. Data sheets.
- 4. Data sheet of all bought out equipment.
- 5. MOC's of all components of the system.

(B) **Installation Qualification**

- 1. As built -
  - a. Dust collector drawing.
  - b. DUST EXTRACTION SYSTEM schematic.
  - d. Wiring (ckt) diagram.
- 2. Fan performance curve and test certificate.
- 3. cartridge filter test certificate.
- 4. Data sheets.
- 5. All bought out item data sheet.
- 6. Test certificates for
  - i. Filters
  - ii. Motors
  - iii. Timers and solenoid valves
  - iv. magnhelic guages

(C) **Operation Qualification**

- 1. Commissioning procedure.
- 2. cfm reading format - To be approved by Company before use.

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3. cfm reading using anemometer.
4. Velocity measurement.

**(D) Performance Qualification**

After erection of various DUST COLLECTORS all the units shall be tested for their rated capacity.

Following parameters have to be assured by the contractor.

- i) CFM specified
- ii) Noise level
- iii) Vibration
- iv) Layout & finish
- v) Access doors to be lockable
- vi) Alarm with burst filter & choked filter

These tests and checks shall be performed with respective production machines installed and running and with production personnel within the facility. These tests will be performed to determine if, the operating equipment's / personnel present any abnormal conditions than previously recorded in static state.


The type of tests will include cfm and monitoring pressure differentials, across the filters.

The Contractor shall then hand over the facilities to the Company and assist the Company in final qualification testing.


**NOTE: All above qualification tests shall be performed as per Qualification Protocols checked and approved by the Company.**

**6.2 Testing Instruments**

- a) Necessary instruments as required for testing will be arranged by the contractor at his own cost.


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- b) All the instruments to be used during testing and in the regular operation of the system shall be calibrated and calibration certificates shall be submitted for review & approval.
- c) All the necessary instruments shall be able to calibrate. Test, calibrate, retest and recalibrate measuring instruments at the laboratory.

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## **SECTION 7**

### **GENERAL DESCRIPTION/BASIS OF DESIGN**

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## **GENERAL DESCRIPTION/BASIS OF DESIGN**

### **A) DESCRIPTION OF DUST COLLECTOR**

#### **OBJECTIVE:**

To reduce the dust load in production area viz: granulation/ compression etc thereby keeping a dust free environment for the safety and comfort of workers.

The Dust extraction system, Scrubber & filter cleaning system in general comprises of a suction hood, Piping, dust collector, blower, compressed air piping etc.

The typical dust collector comprises of a filter element cartridge type, compressed air manifold, solenoid operated diaphragm valve, blower and control panel with timer.

The dust laden air is sucked through the set of suitable filters and re-circulated to the return of AHU or discharged to the atmosphere through filter or through scrubber as applicable. .


The dust enters the bottom of the collector and travels up-wards through a filter element. The dust gets collected on the outside surface of the filter. A blower is mounted on the dust collector to suck the dust from the dust generation points through a hood and ducting. As the dust gets collected on the outside surface of the filter media, the pressure drop across the unit increases. In order to ensure a constant pressure drop across the unit and thereby ensuring no back pressure on the system, the dust has to be removed from the filter element which is done by injecting compressed air from the top. The air supply is regulated by means of a timer/digital differential pressure indicator and solenoid operated diaphragm valve. The dust is finally collected in the bottom hopper / container.

### **B) DESCRIPTION OF FILTER CLEANING SYSTEM**

#### **OBJECTIVE:**

1. To design a suitable cleaning system so that workers & environment are exposed to powder to minimum level while cleaning the filter
2. To ensure powder goes into the atmosphere to minimum level.
3. Suitable filter drying system.




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The filter cleaning system comprises of filter loading station in SS and a scrubber to scrub the particulate matter from the filter.

The filter is placed on the filter plenum and a suitable filter cleaning system cleans the filter with compressed air gun and alternatively with water through a flexible hose pipe. The dirty side of the filter is placed downwards. As the compressed air is injected from the top through an air gun the particulate matter is sucked from the bottom and conveyed to a wet scrubber. Thus the filter is cleaned with minimum duct spread out in area in which filters are cleaned.

The exhaust air shall be directed to Venturi type scrubber and effluent water shall be directed to ETP.

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**DESCRIPTION OF SCRUBBER FOR COATING PANS**  
**OBJECTIVE:**

To reduce the dust load and fumes in coating area thereby keeping a relatively dust free environment for the safety and comfort of workers.


The Dust extraction system, Scrubber & filter cleaning system in general comprises of a blower and wet scrubber of venturi type.

The system is proposed for 48inch pan.

The system in general shall comprise of piping, Venturi scrubber, blower, pump and water re-circulation piping etc. The fumes from coater shall be sucked by a blower located after the scrubber and conveyed to the scrubber through piping. The fumes are scrubbed by using water as the scrubbing media. The scrubbed water is collected in the bottom re-circulation tank which has to be drained periodically. The clean air with dust concentration of less than of 50mg/nm<sup>3</sup> (it has to be done in a manner that dust should not be sucked by AHU) is discharged into the atmosphere through a G.I. duct at a height of 15 ft.

The scrubber will be Venturi type and effluent water shall be directed to ETP.

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**DESCRIPTION OF SCRUBBER FOR ORS AREA**  
**OBJECTIVE:**

To reduce the dust load in packing area thereby keeping a relatively dust free environment for the safety and comfort of workers.

The Scrubber system in general comprises of a piping, blower, and wet scrubber of venturi type.


The system is proposed for 4nos packing machines.

In view of corrosive nature of dust due to salt content the scrubber will be in PP +FRP construction.

The system in general shall comprise of piping, Venturi scrubber, blower, pump and water re-circulation piping etc. The fumes from coater shall be sucked by a blower/induced draft fan located after the scrubber and conveyed to the scrubber through piping. The fumes are scrubbed by using water as the scrubbing media. The scrubbed water is collected in the bottom re-circulation tank which has to be drained periodically. The clean air with dust concentration of less than of 100mg/nm<sup>3</sup> is discharged into the atmosphere through a duct work. It should be done in a manner that dust should not be sucked by AHU,s

The scrubber will be Venturi type and effluent water shall be directed to ETP..

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## **SECTION 8**

# **TECHNICAL SPECIFICATIONS**



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## **TECHNICAL SPECIFICATIONS**

**NOTE: The information required as below is the minimum requirement. However the tenderer is expected to submit comprehensive technical information for all pieces of equipment and material**

**Technical catalogues and performance tables/curves of blowers for all equipment's and machines must be submitted in relevant document.**

### **A DUST COLLECTOR UNIT**

For indoor installation and mainly comprise of following:

1. Filter.
2. compressed air purging system
3. blower
4. Suitably housed in a double skin housing

### **B) DUST COLLECTOR**

#### **1.0 SCOPE OF WORK**


1.1 This specification covers design, manufacturing, inspection, testing at works, packing, forwarding, supply and providing performance guarantee of DUST COLLECTORS. The scope also covers assembly/ erection of units at site and commissioning.

1.2 The specification is to be read in conjunction with datasheets, standards and all attached annexures.

1.3 It is not the intent to completely specify all the details of design and construction, nevertheless, the equipment shall conform in all respects to high standards of engineering, design, workmanship and shall be able to meet all statutory requirements, perform continuous commercial operation up to contractor's guarantee manner acceptable to purchaser who will interpret drawings and specification and shall have the power to reject the work or material which is not in accordance with one specifications.

#### **3.0 TECHNICAL REQUIREMENT OF DUST COLLECTORS:**

(DOUBLE SKIN TYPE)

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### 3.1 Type

The DUST COLLECTORS shall be MS double skin construction.

### 3.2 Design Parameters

Air to cloth ratio	Vendor has to specify
Maximum noise level at 1 m distance	Vendor has to specify

### 3.3 Casing

Double skinned dust collector with inner skin in minimum 22 swg thick GI. outer skin in precoated sheet of 24G. 40mm thick PUF insulation to be used.

Units shall have hinged, quick opening access door. Access doors shall be double skin type.

### 3.4 Motor and Drive

The motor selected shall be least 10% higher capacity than BHP of fan requirement at designed capacity 415± 10% Volts, 50 cycles, three phase, totally enclosed fan-cooled class F, with IP-55 protection. Motors shall be especially designed for quiet operation.

### 3.5 Fan


Tenderer has to specify the type of fan used. Casing shall be made from MS sheet with epoxy painting. Fan wheels shall be individually tested and precision balanced dynamically. Fan will be mounted on top of dust collector and will be directly driven.

Motors shall be factory assembled mounted inside the dust collector casing and be totally enclosed, fan cooled, to be class 'F' insulation.

### 3.6 Accessories

All dust collectors units shall be supplied with following accessories. However the accessories will be measured as per the actual quantities.

- 1) Inlet damper. **(Lockable)**
- 2) Magnhelic gauge across the cartridge filter.
- 3) Suction hoods

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- 4) Branch Damper
- 5) Piping with supports
- 6) Electrical starter, cable, remote push button
- 7) Alarm, Annunciation and controls
- 8) Electrical cables, earthing etc.

### 3.7 **Inspection**

3.7.1 Inspection including witnessing of tests will be carried out by purchaser or his authorized representative, if required. However, test certificate shall be submitted and clearance obtained before dispatch of the assembled unit.

3.7.2 Vendor shall notify purchaser or his authorized representative in writing at least fifteen (10) days prior to the schedule for inspection/ tests.

3.7.3 Vendor shall submit calibration certificate for all instruments/ pressure switches etc. supplied with the equipment.

### 3.8 **Testing and Commissioning**

3.8.1 Unit shall be tested for establishing the capacity and power consumption with sound level & vibration.


### 4.0 **Shop Drawings**

Within two weeks after the award of the contract, the contractor shall furnish, for the approval of the Owner three sets of GA drawing of dust collector and control panel SLD.

Please note that total drawing and documentation shall be responsibility of Dust extraction system, Scrubber & filter cleaning system contractor.

### 5.0 **Operating Instruction and Maintenance Manual**

The contractor shall submit a draft copy of comprehensive operating instruction, maintenance schedule and log sheets for the DUST COLLECTOR and associated equipment included in this contract. This shall be supplementary to manufacturers operating and maintenance manuals. Upon approval of the draft, the contractor shall submit four (2) complete bound sets of type written operating instructions and

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maintenance manuals and relevant P & ID drawings etc. and also the soft copy of the same .

## 6.0 On Site Training

Subcontractor shall depute skilled operators and helpers for operating the entire installation for a period of seven (7) days each to enable the Owner's staff to get acquainted with the operation of the system. During this period, the contractor shall train the Owner's representatives in the operation, adjustments and maintenance of all equipments installed.

## 7.0 Performance Guarantee & Acceptance Tests

### 7.1 Performance Guarantee


Bidder shall guarantee that upon completion of the work all portions will be in full accordance with the requirements of the contract and will be perfect as to materials and workmanship and remain so for a minimum period of one year from the date of final acceptance by the Company. The Bidder shall also guarantee that the equipment will operate satisfactorily & dust extraction shall be effective. The performance and efficiencies of the equipment when operating under normal conditions shall not be less than the guaranteed values. The Bidders further guarantee that during the one year period he will repair all defective work and will expeditiously replace all defective materials furnished or installed under the contract, free of cost to the Company within reasonable time from the detection thereof. Work/supply if same is a manufacturing defect.

### 7.2 Acceptance Tests

After the entire installation work has been completed the Bidder shall make all required adjustments until all guaranteed performance requirements are met. After the entire system is adjusted, the Bidder shall conduct acceptance tests of the installation in the presence of Engineer-in-charge during which the installation shall meet the guaranteed performance requirements to the satisfaction of Engineer-in-charge. All instruments and services required for the tests shall be provided by the Bidder. The tests reports shall be submitted for Company's approval before handing over the plant.

Dust extractor is to be effective. The criteria of effectiveness is air quantity i.e. CFM to be discussed during negotiation. All tools, tackles,



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equipments and instruments required for erection, commissioning and carrying out acceptance tests shall be arranged by Bidder. Bidder shall also be responsible for clearing all debris during execution and after completion of work.

## 8.0 Maintenance During Defects Liability Period

### 1. Repairs:

All equipments that require repairing shall be immediately serviced and repaired. Since the period of mechanical maintenance runs for one year concurrently with the defects liability period, all replacements parts and labour shall be supplied promptly free-of-charge to the Owners.

### 2. Spares:

Any additional accessories/ spares required before and after installation of Dust extractor Unit shall be informed to Company.

## 4.0 Thermal Insulation For Ducts:

### 4.1 General

Insulation work shall be carried out for ducts as per IS standards for thermal insulation materials and finishing materials and also codes of practice for industrial applications.


### 4.2 Material

Insulation material shall be closed cell elastomeric nitrile rubber or cross linked, closed cell polyethylene (PE) CFC free foam sealed/ backed by aluminum sheet/foil or equivalent as described in Bill of Quantities.

## H) ELECTRICAL WORKS

### 1.0 SCOPE OF WORK:

The scope includes supply of control panel in CRCA powder coated construction with MCB, Contactors/relays, indication lamps and provision for remote operation Start / Stop push Button.

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**2.0 OWNER'S RESPONSIBILITY :**

- 2.1 Provide incomer to dust collector control panel.
- 2.2 To provide main earthing grid at Dust extraction system, Scrubber & filter cleaning system Electrical Panels.
- 2.3 Providing remote push button with control cable from dust collector control panel & electrical interlocking with AHU shall be in **Vendor**

**Scope**

**3.0 DUST EXTRACTION SYSTEM – ELECTRICAL PANEL :**

Supply, Manufacture, Erection, Testing and Commissioning of Dust extraction system, Scrubber & filter cleaning system – Electrical Panel as per specification “ Electrical Panels for Dust extraction system, No. of Panels, Scrubber & filter cleaning system”. Three panels to be provided to house the entire switch gears.

**5.0 STANDARDS :**


All the equipments shall be supplied and installed as per following standards :-

- IS-3043-1987 : Earthing System
- IS-1554-1988 : Cables

**6.0 GENERAL :**

- 6.1 No fabrication shall be undertaken by the sub-contractor without approval of components, G.A.drawing and QAP.
- 6.2 No equipment shall be dispatched without inspection and/or clearance by owner.
- 6.3 The scope of sub-contractor includes all relevant electrical equipment / sensors / interlocks required for smooth and efficient working of the system.

**7.0 DESIGN CRITERIA :**

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**7.1 Site Conditions :**

- Ambient Temp : 48°C Maximum
- Humidity : 75 % Maximum

**7.2 System Conditions :**

Supply Voltage and Frequency :


- Voltage : 415V,  $\pm$  7.5%
- Frequency : 50 Hz.  $\pm$  3%

solidly grounded.

Control Voltage : 230V A.C

- 7.3 Motors upto 2.2 KW with DOL Starter. Motor above 2.2 KW, with Star- Delta Starter.
- 7.4 Motor feeders above 15 KW shall be provided with Ammeter on L.T. panel.
- 7.5 For cable sizing voltage drop of 2% from L.T. switchboard upto motor, will be allowed.
- 7.6 For cable sizing, starting voltage drop shall be 10%.
- 7.7
  - Control Cable shall be 2.5 mm<sup>2</sup> copper.
  - Power cable minimum size shall be 2.5 mm<sup>2</sup> copper or 4 mm<sup>2</sup> Copper

Aluminum armored cable shall be used above 4 mm<sup>2</sup>
- 7.8 Painting shade shall be Siemens grey – RAL – 7032.
- 7.9 Earthing shall be done using G.I. wire / strip.
- 7.10 Component selection of switchgear shall be as per manufacturer's recommendation .
- 7.11 Components to be provided on incomer of Dust extraction system, Scrubber & filter cleaning system panel :
  - Switch fuse / Breaker

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- Voltmeter
- RYB indicating lamps
- 3 Nos. CTS & Ammeters with selector switch.

7.12 CT wiring shall be 2.5 mm<sup>2</sup>

7.13 Outdoor glands shall be of double compression type brass glands with accessories to suit outgoing cable sizes. For indoor FLP areas, double compression glands shall be used. For indoor hon- FLP areas, single compression glands shall be used.

7.14 Crimping type lugs shall be used for cable termination.

#### 8.0 LOCAL CONTROL PB STATIONS:

All motors shall have local control push button stations mounted near driven mechanism.

They shall be of wall / column mounting design.

The material of construction of all PB stations shall be M.S.Powder coated

Wiring shall be done using 1.5 mm<sup>2</sup> 660V grade cable and all components shall be wired to terminal block.

Two number earthing studs shall be provided on frame of push utton station.


The component details of local PB station shall be as follows :

- For motors
- START PB ( Flush tyoe)
  - STOP PB (mushroom headed, press to lock, turn to release type).

#### 10.0 CABLES :

Supply of cables from outgoing of Dust extraction system, Scrubber & filter cleaning system Electrical panel to various drives / PB station level controllers / control etc. is included in the scope of work of the Dust extraction system, Scrubber & filter cleaning system contractor.

All cables shall be 660/1000V grade PVC insulated extruded PVC inner sheath, armoured overall PVC sheathed conforming to IS : 1554.

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All power cables of size 6mm<sup>2</sup> & above shall be with stranded and 6 mm<sup>2</sup> & below shall be solid copper core. All control cables shall be of stranded copper core of size 1.5 mm<sup>2</sup>.

Cables shall be selected considered a combined de-rating factor as recommended by cable manufacturer and site condition of cable installation. There shall be no joint in the run of a cable. Also, due consideration shall be given to starting & running voltage drop in the cable whilst selecting the cable sizes for motors, which shall be limited to 10% & 2% respectively between Dust extraction system, Scrubber & filter cleaning system panel & motor.

Control cables shall be provided with 20% cores as spare.

#### 11.0 **EARTHING :**

A continuous earth bus shall be provided for the Dust extraction system, Scrubber & filter cleaning system – Electrical panel earthing bolt at each end.

The earth bus shall be of copper.

Neutral and earth bus bars shall be connected through a link.

All Electrical equipment shall be provided with double earthing. Earthing material shall be G.I.

Panel earthing shall conform to IS : 3043.


Internal earthing network shall be connected at 2 places minimum to the external earthing network. Earthing system of the plant shall be designed as per IS : 3043.

#### 12.0 **CABLE TRAY & CABLE LAYING :**

All cable trays installed shall be of G.I ladder type while crossing the floor for entry to the equipment terminal, the same shall be taken in GI Pipe of Class – B.

Proper supports for cables shall be provided at all places.  
All cables shall be provided with tag no. as per approved drawings.

All cables shall be neatly dressed.

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Double layer of cables on tray is not acceptable.

Anchor fasteners or any material for supporting cable / cable tray is included in scope.

The tray shall be hot dip galvanized as per IS 2629 with Zinc coating .

### 13.0 **ERECTION ACCESSORIES :**

13.1 All erection accessories (i.e. Anchor fasteners, steel, etc.) required for installation of various units/cables shall be supplied by the Contractor.

13.2 All supporting structural items shall be painted with anti-corrosive paint as approved by the Owner.

13.2.1 DUST EXTRACTION SYSTEM-Electrical panel shall be mounted on base frame supplied by panel manufacturer.

### 14.0 **DRAWINGS :**

The following drawings / details to be furnished by the Contractor for approval :

- Single line diagram of Dust extraction system, Scrubber & filter cleaning system Electrical panel.
- Drive list

Drawings to be furnished after commissioning (Two copies)

The following drawings to be furnished after commissioning :

- As built drawings
- Operating & instruction manuals
- As built drawings shall include all approved & revised drawings as per finally erected & commissioned equipment.
- Catalogues of all components used.
- Soft copy of all as built drawings shall be submitted.

### 15.0 **INSPECTION & TESTING :**



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- All electrical equipment shall be routine tested at manufacturer work to check the conformity to the specification and specific technical requirement as per relevant IS specification OWNER shall be given notice of readiness of equipment and proposed date of testing giving 5 days notice.
- In addition to the above, the following site tests shall be carried out; but not necessarily limited to :
  - **Motors :**
    - 1) Megger / IR test
    - 2) No load run for 30 minutes / till temperatures stabilized with time vs temperature chart.
    - 3) Recording of
      - ii) Phase voltages
      - iii) No load currents
      - iv) Load (rated) current
    - 4) Load run for 8 Hrs.
    - 5) Alignment check, shaft runout where applicable e.g.main blower
    - 6) Vibration check for main blower motor.

15.1 **EARTHING:**


- 1) Earth resistance check for grid (< 1 ohms)
- 2) Size of Earthing conductor.

15.2 **DUST EXTRACTION SYSTEM PANEL :**

- 3) Phase polarity test
- 4) Control circuit check
- 5) Relays functional test
- 6) Load test on outgoing feeders

15.3 **CABLES :**

- 1) Megger test
- 2) Continuity test

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Note : 3bound copies of site test certificates shall be handed over to the **OWNER by the CONTRACTOR**





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**DATA SHEET OF DUST COLLECTOR FOR 500CFM\***

Type : Pulse Jet Dust collector  
Model /Qty : **VTS ( VENDOR TO SPECIFY)**  
Capacity : 500CFM.  
No.of.filters : **VTS**  
Filter material : Spun bond polyester with anti-adhesive finish.  
Filter efficiency : 99% down to 1 micron.  
Total filtration area : NLT10 m2  
Type of cleaning : On-line.  
Compressed air required for cleaning: **VTS**  
free of oil & moisture at 4-5kg/cm2.  
Flange to flange pressure drop : **VTS**  
Appx overall size mm: **VTS**  
Construction: MS epoxy painted.

Hood Design: Vendor to design as per the design of production equipment and respective dust generating point of equipment for effectiveness of Dust extraction system, Scrubber & filter cleaning system.  
Interlocking with HVAC: Provision should be made wherever required.

**BLOWER DETAILS:**


Capacity : 500CFM.  
Static pressure: 300mmwc  
Motor rating : **VTS**  
MOC : MS epoxy.

**Mounting : Vertically on dust collector top.**

**Note: CFM are approximate, provision should be made to increase or decrease to optimize the efficiency/ performance of the system.**

**DATA SHEET OF DUST COLLECTOR FOR 800CFM\***

Type : Pulse Jet Dust collector

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Model /Qty : **VTS** / 's

Capacity : 800CFM.

No.of.filters : **VTS**

Filter material : Spun bond polyester with anti-adhesive finish.

Filter efficiency : 99% down to 1micron.

Total filtration area :NLT 20 m2

Type of cleaning : On-line.

Compressed air required for cleaning: **VTS**  
free of oil & moisture at 4-5kg/cm2.

Flange to flange pressure drop : **VTS**

Appx overall size mm: **VTS**

Construction: MS epoxy painted.

Hood Design: Vendor to design as per the design of production equipment and respective dust generating point of equipment for effectiveness of Dust extraction system, Scrubber & filter cleaning system.

Interlocking with HVAC: Provision should be made wherever required.

**BLOWER DETAILS:**

Capacity : 800CFM.

Static pressure: 300mmwc

Motor rating : **VTS**

MOC : MS epoxy.

**Mounting : Vertically on dust collector top.**

**Note: CFM are approximate, provision should be made to increase or decrease to optimize the efficiency/ performance of the system.**



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**SCRUBBER DATA SHEET FOR 2NOS 48” COATING PAN**

Application : To scrub air from 2nos 48” coating pans.  
Type : Venturi scrubber.  
Capacity : 1200 cfm.  
Inlet temperature : ambient.  
Inlet dust (Assumed) : 300mg/nm3.  
Outlet dust load : Less than 100mg/nm3.  
Water recirculation : VTS.  
Appx make up water : VTS.  
MOC : MS with epoxy painting.  
Tank capacity : minimum 400lts

**CENTRIFUGAL FAN:**

Capacity : 1200 cfm.  
Static pressure : VTS.  
Drive : Direct.  
Motor recommended : VTS.  
Matl of construction : M.S with epoxy painting.

**PUMP DETAILS:**

Type : centrifugal monoblock.  
Capacity : VTS.  
Head : VTS.  
Matl of construction : CI.  
Motor : VTS.

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**SCRUBBER DATA SHEET FOR 1NO.48” COATING PAN**

Application : To scrub air from 1no.48” coating pans.  
Type : Venturi scrubber.  
Capacity : 600 cfm.  
Inlet temperature : ambient.  
Inlet dust (Assumed) : 200mg/nm3.  
Outlet dust load : Less than 100mg/nm3.  
Water recirculation : VTS.  
Appx make up water : VTS.  
MOC : MS with epoxy painting.  
Tank capacity : minimum 400lts

**CENTRIFUGAL FAN:**

Capacity : 600 cfm.  
Static pressure : VTS.  
Drive : Direct.  
Motor recommended: VTS.  
Matl of construction: M.S with epoxy painting.

**PUMP DETAILS:**

Type : centrifugal monoblock.  
Capacity : VTS.  
Head : VTS.  
Matl of construction : CI.  
Motor : VTS.

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**SCRUBBER DATA SHEET FOR OSD FOR 800-1000CFM**

Application : To scrub air from OSD Mixing room / pouch filling room  
Type : Venturi scrubber.  
Capacity : 800-1000cfm  
Inlet temperature : ambient.  
Inlet dust (Assumed): 300mg/nm<sup>3</sup>.  
Outlet dust load : Less than 100mg/nm<sup>3</sup>.  
Water recirculation : VTS.  
Appx make up water : VTS.  
MOC : 3mm PP+ 5mm FRP lining from outside.  
Tank capacity : minimum 500lts


**CENTRIFUGAL FAN:**

Capacity : MS with FRP lining from inside and epoxy paint from outside.  
Static pressure : VTS.  
Drive : Direct.  
Motor recommended: VTS.  
Matl of construction : M.S with epoxy painting.

**PUMP DETAILS:**

Type : centrifugal.  
Capacity : VTS.  
Head : VTS.  
Matl of construction: PP.  
Motor : VTS.

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## **PART – II**

# **TECHNICAL SPECIFICATIONS: DEVIATION FORMAT**






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## TESTING & ADJUSTING



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## **TESTING AND ADJUSTING OF Dust extraction system, Scrubber & filter cleaning system SYSTEMS**

### **1.0 OBJECTIVE**

This document is intended to provide guidance in the testing, adjusting and balancing of Dust extraction system, Scrubber & filter cleaning system systems to assure that installed systems operate in accordance with approved design requirements.

### **2.0 SCOPE**

This standard shall apply to all facilities when new Dust extraction system, Scrubber & filter cleaning system systems are installed or when existing Dust extraction system, Scrubber & filter cleaning system systems are modified. It may also be useful in providing guidance in routine systems balancing by plant operation and maintenance groups as required.

### **3.0 GENERAL**

#### **3.1 Quality Assurance**

Agency Qualifications:

The Dust extraction system, Scrubber & filter cleaning system contractor will undertake the single source of responsibility to test, adjust, and balance the systems to produce the design objectives. Services shall include checking installations for conformity to design, measurement and establishment of the fluid quantities of the mechanical systems as required to meet design specifications, and the recording and reporting of the results.

#### **3.2 Project conditions**

Systems shall be fully operational prior to beginning procedures. Duct leakage test shall be performed and report approved. Systems affecting each other must be tested and balanced with all systems in operation.



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***PART – IV***

**LIST OF APPROVED MAKES**



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No deviation from this list is allowed unless approved during quotation stage:-

Sr.No	Equipments	Makes
1	GI Sheets	Jindal / SAIL
2	Solenoid valves	Maniks / avcon
3	Motors	Crompton/Bharat Bijlee/Kirloskar / Siemens
4	Pipes	Gujrat tubes/Jindal
5	Magnehelic gauges	Dwyer
6	Sequential timer	Shiva electronics/selectron
7	MCC components	L&T/Siemens
8	T & RH Sensor	Sauter/ Landies & Stefa/ Honey well/Stachwell
10	Pressure Switches	Sauter/ Landies & Stefa/Honey well/ Stachwel/ dwyerl
11	Pre & Fine Filter	Klenzaid's/Zephyr/Pyramid/Camfil/Trox/ Dyna/Airtech
12	HEPA Filter	Klenzaid's/Pyramid/Camfil/Trox/ Dyna/Airtech
14	Differential pressure gauge for	
15.2	Diff. Pre. of pre cartige filter	Magnehelic (Dwyer)

## **B. ELECTRICAL**



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Sr.No	Equipments	Makes
1.	Contactor/Overload Relay/Fuse Switch Units	Siemens / L & T
2.	Push Button Station	Siemens / TEKNIC
3.	Air Circuit Breaker / Switch Fuse Unit	Siemens / L & T
4.	MCCB	Siemens / L & T
5.	MCB	MDS/INDO KOPP/Siemens
6.	Indicating Lamps	Tecknic/Siemens
7.	Cables	CCI/UNIVERSAL/INCAB/FINOLEX/ POLYCAB
8.	Terminals	Elmex / Connectwell
9.	Cable Gland	Commet/Dowells
10.	Cable Lugs	Dowells



TENDER DOCUMENT FOR  
DUST EXTRACTION SYSTEM, SCRUBBER &  
FILTER CLEANING SYSTEM

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**PART V**

**BILL OF QUANTITIES**

**AND**

**SCOPE OF WORK BY VENDOR**



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**BILL OF QUANTITY AND PRICE**  
**ANNEXURE-A**

VENDOR: *****		DTD: *****		
BILL OF QUANTITIES & RATES				
Sr. No.	Description	Qty.	Rate (INR)	Amount (INR)
<b>A</b>	<b>DUST COLLECTOR FOR GENERAL &amp; BETA BLOCK</b>			
	Pulse jet type Dust collector in MS epoxy painted construction and with 25mm thick PUF insulation externally clad with 26G metacolor sheet complete with cartridge filters, centrifugal blower with motor & its own control panels, timer etc. with bottom collection bin of 30-40lts. Magnetic gauge will be provided across cartridge filter/ door interlocking.			
1	500cfm	11		
2	800cfm	4		
<b>B</b>	<b>WET SCRUBBER FOR COATING</b>			
	MS epoxy painted venture scrubber complete with recirculation piping and valves, inbuilt water re-circulation tank, skid base frame, float valve and pressure guage, mist eliminator in SS & SS spray nozzles. and control panel. Pump & blower with motor.			
1	500cfm	01		
2	800cfm	01		
<b>C</b>	<b>FILTER CLEANING SYSTEM</b>			
	MS epoxy painted ventui scrubber complete with recirculation piping and valves, inbuilt water re-circulation tank, skid base frame, float valve and pressure guage, mist eliminator in FRP & SS spray nozzles. and control panel. M.S. Powder coated Pump & blower with motor. Scrubber of 1500cfm  SS304 Plenum of appx 800x800x1000 mm ht in 2mmthk.	2nos		
<b>D</b>	<b>WET SCRUBBER FOR ORS</b>			




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	PP+FRP venture scrubber complete with recirculation piping and valves, inbuilt water re-circulation tank, skid base frame, float valve and pressure gauge, mist eliminator in FRP & SS spray nozzles. and control panel. M.S. Powder coated Pump in PP & blower in MS+FRP lining from inside and epoxy paint from outside and with motor.			
1	800cfm	1no		
2	1000cfm	1no		
<b>E</b>	<b>SS HOODS</b>			
	SS 304 with damper & triclover clamp & flange at other end. (Specific for salt area)			
1	Lateral hood for 30" sifter	05nos		
2	Hood for multi mill	04nos		
<b>F</b>	Electrical Panels	No		

**ANNEXURE-B**

<b>G</b>	Sheet metal work			
	24 G (0.63 mm thick)	sq. ft	As per site	
	22 G (0.80 mm thick)	sq. ft	As per site	
<b>H</b>	9 mm thick thermal insulation with non fibrous CFC free, closed cell, chemically closed linked Polyethylene foam insulation with factory backed aluminum foil	sq. ft	As per site	
<b>I</b>	Power wiring with sheathed armored aluminum cables			
	3cx4 sq. mm Cu	Rft	As per site	
	3.5cx4 sq. mm Cy	Rft	As per site	
<b>J</b>	Control wiring with sheathed armored copper cables			
	4cx1.5sq. Mm Cu	Rft	As per site	
	2cx1.5 sq. mm Cu	Rft	As per site	
		TOTAL		
	P & F @			
	EXCISE DUTY @			
	SALES TAX @			
	FREIGHT			
	TOTAL LANDED COST			
	SUPERVISION OF INSTALLATION INCLUDING BOARDING/ LODGING & CONVEYANCE ETC			

	<p>TENDER DOCUMENT FOR DUST EXTRACTION SYSTEM</p>	<p>GIA - 016 Date : 27-09-2013 Version-02</p>
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## SCOPE OF WORK BY VENDOR

### A) Dust extraction system, Scrubber & filter cleaning system:

#### DESIGN, ENGINEERING, SUPPLY, INSTALLATION AND COMMISSIONING OF Dust extraction system, Scrubber & filter cleaning system COMPRISING OF PULSE JET DUST COLLECTOR OR WET SCRUBBER AS APPLICABLE:

The system in general will comprise of SS hoods inside the production area duly piping polished. Ducting from SS hood to dust collector / scrubber inlet will be in S.S. 304 and filtered air from dust collector outlet to AHU return in GI. Dust collector will be in MS +Double skin with 40thk PUF insulation. The outside panel will be 26G metacolor sheet. Wet scrubber will be complete with Pump, piping and valves, blower, mist eliminator etc.

The filtered air from dust collector will be returned to AHU or to atmosphere through filter and wet scrubber filtered air will be let out to the atmosphere.


#### 1. GENERAL BLOCK (OLD BLOCK):

- 3nos Dust collectors for compression machine of 500cfm each. Dust collector to be located on service floor.
- 1no Dust collector for Granulation rooms for sifter and multi-mill of 800cfm. Dust collector to be located on service floor.
- 1no.wet scrubber viz: venture type for 2no's 48" coating pan of 1200cfm. Scrubber to be located on service floor.

#### 2. GENERAL BLOCK (NEW BLOCK):

- 2nos Dust collectors for capsule machine of 500cfm each. Dust collector to be located on service floor.
- 2nos Dust collector for Granulation rooms for sifter and multi-mill of 800cfm. Dust collector to be located on service floor.
- 3nos Dust collectors for compression machine of 500cfm each. Dust collector to be located on service floor.



	<p>TENDER DOCUMENT FOR DUST EXTRACTION SYSTEM</p>	<p>GIA - 016 Date : 27-09-2013 Version-02</p>
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**FOR ORS AREA: wet scrubber in PP+FRP:**

- 1no.wet scrubber viz: venture type for mixing room for sifter and multi-mill of 800cfm. Scrubber to be located on service floor.
- 1no.wet scrubber viz: venture type for 4nos pouch filling machine feed hopper of 1000cfm. Scrubber to be located on service floor.

**3. BETA BLOCK:**

- 1No. Dust collectors for capsule machine of 500cfm each. Dust collector to be located on service floor.
  - 1no. Dust collector for Granulation room for sifter and multi-mill of 800cfm. Dust collector to be located on service floor.
  - 1no.Dust collector for compression machine of 500cfm each. Dust collector to be located on service floor.
  - 1no. Dust collector for sifter in blending room of 500cfm. Dust collector to be located on service floor.

**B) FILTER CLEANING SYSTEM:**

**DESIGN, ENGINEERING, SUPPLY, INSTALLATION AND COMMISSIONING OF FILTER CLEANING SYSTEM COMPRISING OF FILTER LOADING PLENUM IN SS304 AND WET VENTURI SCRUBBER:**

The filter cleaning system comprises of filter loading station in SS and a scrubber to scrub the particulate matter from the filter. The system is designed to clean 1 No filter at a time. The design must correlate with HVAC filters.

Wet scrubber will be complete with Pump, piping and valves, blower, mist eliminator etc.

**1) GENERAL BLOCK (OLD BLOCK): 1NO**

The filter plenum will be located on the service floor and wet scrubber on a platform outside the service floor.

**2) BETA BLOCK: 1NO.**

The filter plenum will be located on the service floor and wet scrubber on the terrace.

**-END OF THE DOCUMENT-**