

Further, we, the Qualified Equipment Manufacturer shall extend our quality surveillance/ supervision/ quality control to the Contractor during manufacture, erection, commissioning and performance testing, both at Qualified Indian Manufacturing Company's works and/ or at Employer's project site.

Further, the Qualified Equipment Manufacturer shall depute their technical experts from time to time to the Qualified Indian Manufacturing Company's works/ Employer's project site as required by the Employer and agreed to by Qualified Indian Manufacturing Company to facilitate the successful performance of the (Name of Equipment) as stipulated in the aforesaid Contract.

Further, the Qualified Equipment Manufacturer shall ensure proper design, manufacture, installation, testing and successful performance of the (Name of Equipment) under the said Contract in accordance with stipulations of Bidding Documents and if necessary, the Qualified Equipment Manufacturer shall advise the Qualified Indian Manufacturing Company suitable modifications of design and implement necessary corrective measures to discharge the obligations under the contract.

- (b) In the event Indian Qualified Indian Manufacturing Company /Contractor fail to demonstrate that the (Name of Equipment) meets the guaranteed parameters and demonstration parameters as specified in the contract, the Qualified Equipment Manufacturer shall promptly carry out all the corrective measures related to engineering services at their own expense and shall promptly provide corrected design to the Employer.
- (c) Implementation of the corrected design and all other necessary repairs, replacements, rectification or modifications to the (Name of Equipment) and payment of financial liabilities and penalties and fulfillment of all other contractual obligations as provided under the contract shall be the joint and severally responsibility of the Contractor and Qualified Indian Manufacturing Company and Qualified Equipment Manufacturer.

5. We, the Bidder/Contractor and Qualified Equipment Manufacturer and the Qualified Indian Manufacturing Company do hereby undertake and confirm that this Undertaking shall be irrevocable and shall not be revoked till ninety (90) days after the end of the defect liability period of the equipment covered under the Contract and further stipulate that the Undertaking herein contained shall terminate after ninety (90) days of satisfactory completion of such defect liability period. In case of delay in completion of defect liability period, the validity of this Deed of Joint Undertaking shall be extended by such period of delay. We further agree that this Undertaking shall be without any prejudice to the various liabilities of the Contractor including Contract Performance Security as well as other obligations of the Contractor in terms of the Contract.

6. The Bidder/Contractor and Qualified Equipment Manufacturer will be fully responsible for the quality of all the equipment/main assemblies/components manufactured at their works or at their Vendors' works or constructed at site, and their repair or replacement, if necessary, for incorporation in the Plant and timely delivery thereof to meet the completion schedule under the Contract.
 7. In case of Award, in addition to the Contract Performance Security for the Contract, the Qualified Equipment Manufacturer shall furnish 'as security' an on demand Performance Bank Guarantee in favour of the Employer as per provisions of the bidding documents. The value of such Bank Guarantee shall be equal to **INR 10 Million (Indian Rupees Ten Million)** and it shall be guarantee towards the faithful performance /compliance of this Deed of Joint Undertaking in accordance with the terms and conditions specified herein. The bank guarantee shall be unconditional, irrevocable and valid till ninety (90) days beyond the end of defect liability period of the last equipment covered under the Contract. In case of delay in completion of the defect liability period, the validity of this Bank Guarantee shall be extended by the period of such delay. The guarantee amount shall be promptly paid to the Employer on demand without any demur, reservation, protest or contest.
 8. Any dispute that may arise in connection with this Deed of Joint Undertaking shall be settled as per arbitration procedure/rules mentioned in the Contract Documents. This Deed of Joint Undertaking shall be construed and interpreted in accordance with the Laws of India and the Courts of Delhi shall have exclusive jurisdiction.
 9. We, the Bidder/Contractor and Qualified Equipment Manufacturer and the Qualified Indian Manufacturing Company shall form an integral part of the Contracts from the date of signing of this Deed of Joint Undertaking. We further agree that this Deed of Joint Undertaking shall continue to be enforceable till its validity.
 10. That this Deed of Joint Undertaking shall be operative from the effective date of signing of this Deed of Joint Undertaking.
- IN WITNESS WHEREOF, the Bidder/Contractor and Qualified Equipment Manufacturer and the Qualified Indian Manufacturing Company through their authorised representatives, have executed these presents and affixed common seal of their respective companies, on the day, month and year first mentioned above.

1. WITNESS

For M/s ...

(Bidder/Contractor)

(Signature Name)
Representative)

(Signature of the Authorised

(Official Address)

Name ...

Designation ...

Common Seal of the
Company ...

1. WITNESS

For M/s ...
(Qualified Indian Manufacturing Company)

(Signature of the Authorised

(Signature Name)
Representative) ...

(Official Address)

Name...

Designation ...

Common Seal of the

Company ...

1. WITNESS

For M/s ...
(Qualified Equipment Manufacturer)

(Signature of the Authorised
Representative) ...

(Signature Name)

(Official Address)

Name...

Designation ...

Common Seal of the
Company ...

Note : Power of Attorney of the persons signing the said Deed of Joint Undertaking is to be furnished. *

Contractor/Sub-Vendor shall strike out, whichever is not applicable

** copy of priced purchase order for the equipment/system shall be furnished by the Bidder.



TECHNICAL SPECIFICATION OF LIMESTONE GRINDING SYSTEM
NTPC DADRI 2X490MW

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24.2

ANNEXURE – II- TECHNICAL DATA SHEET (to be submitted along with bid)

Sl. No	Description	Data
1.0	GENERAL	
	a. Client	: BHEL-Ranipet
	b. Project	: DADRI (2x 490MW)
	c. Ultimate Customer	: NTPC
	d. Location	: Gautam Budh Nagar, UP, India
	e. Service	: Continuous
	f. Installation	: Inside the Building
	g. Qty –common for both units	: 1 Working + 1 Standby
2.0	MANUFACTURER DETAILS	
	a. Model	: Bidder to provide
	b. Type	: Horizontal
	c. Type of Driver	: Bidder to provide
3.0	OPERATING CONDITION	
	Medium to be handled	: Limestone
4.0	PERFORMANCE DATA	
	a. Capacity TPH	: Bidder to Provide
	b. WBM Dimensions WmXLm M	: Bidder to Provide
	c. efficiency %	: Bidder to Provide
	d. BKW Normal / Maximum KW	: Bidder to Provide
	e. Motor rating KW	: Bidder to Provide
	f. Motor Speed Rpm	: Bidder to Provide
	g. Speed Maximum/ Normal/Minimum rpm	: Bidder to Provide
	h. Noise level dB(A)	: Bidder to Provide
	i. Performance curve	: Bidder to Provide
4.0	CONSTRUCTION DATA	
	a. Manufacturer	:
	b. Model No.	: Bidder to Provide
	c. Journal bearing: Type / Size:	: Bidder to Provide
	d. Thrust bearing: Type / Size:	: Bidder to Provide
	e. Bearing cooling required	: Yes / No - Bidder to confirm
	f. Cooling water required	: Bidder to confirm the quantity
	g. Type of drive	: Direct Drive
	h. Shaft seal	: Mechanical
	i. Size / Code	: Bidder to Provide
	j. Type of coupling	: Bidder to Provide
	k. Service factor	: Bidder to Provide
	l. GD ² at drive shaft end	: Bidder to Provide
	m. Rotation viewed from coupling end	: Clock wise / Counter clock wise
	n. Coupling type	: Yes / No - Bidder to confirm
	o. Coupling make	: Bidder to Provide
	p. Base plate common to WBM, bearing housing,	: Yes / No - Bidder to confirm



TECHNICAL SPECIFICATION OF LIMESTONE GRINDING SYSTEM **NTPC DADRI 2X490MW**

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	coupling		
	q. Total weight	kg	: Bidder to Provide
	r. Maximum Erection weight	kg	: Bidder to Provide
5.0	MATERIALS		
a.	Shell		: Bidder to Provide
b.	Liner		: Bidder to Provide
c.	Discharge drum		: Bidder to Provide
d.	Feed Head		: Bidder to Provide
e.	Discharge head		: Bidder to Provide
f.	Gear guard cover		: Bidder to Provide
g.	Air clutch		: Bidder to Provide
h.	Pinion drive		: Bidder to Provide
i.	Shaft Seal		: Bidder to Provide
j.	Base frame		: Bidder to Provide
6.0	INSPECTION AND TESTING		
a.	Material Test certificates required for : shell, gear, air clutch,main bearing, pinion drive,		: [R] [O]
b.	DPT & MPI Test for impeller, if applicable		: [R] [O]
c.	Ultrasonic & Liquid penetrant test for shaft		: [R] [O]
d.	Dimensional & visual inspection		: [R] [W]
e.	Vibration test at rated speed		: [R] [W]
f.	Performance test		: [R] [W]
g.	Balancing test of Rotor Assembly		: [R] [O]
h.	Noise level test		: [R] [W]
i.	[R]: Required, [W]: Witnessed by BHEL/ NTPC representative, [O]: Observed		
7.0	Technical Data		
7.1	Bunker/Silo shut off gates		
a.	Manufacturer		: Bidder to Provide
b.	Type		: Bidder to Provide
c.	Material of the gates		: Bidder to Provide
d.	Motor rating (KW)		: Bidder to Provide
			:
7.2	Down spout		
a.	Manufacturer		: Bidder to Provide
b.	inside diameter (mm)		: Bidder to Provide
c.	Thickness (mm)		: Bidder to Provide
d.	Height (mm)		: Bidder to Provide
e.	Materia		: Bidder to Provide
f.	Off set between feeder outlet and centre line of Limestone bunker, if any		: Bidder to Provide
7.3	Gravimetric feeder		
	Manufacturer		: Bidder to Provide
	Type		: Bidder to Provide
	Feeder size		: Bidder to Provide
	Normal capacity (tonnes/hr)		: Bidder to Provide
	Maximum capacity (tonnes/hr)		: Bidder to Provide
	Method of output control		: Bidder to Provide



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	Speed pulser allowable VA burden	:	Bidder to Provide
	Feeder belt width (mm)	:	Bidder to Provide
	Auxiliary power consumption (KW)	:	Bidder to Provide
	Type of Drive	:	Bidder to Provide
7.3.1	Limestone Feeders	:	
a.	Manufacturer	:	Bidder to Provide
b.	Model Number	:	Bidder to Provide
c.	Method of measurement	:	Bidder to Provide
d.	Range of measurement (kg/hr).	:	Bidder to Provide
7.4	Downspout from feeder outlet to Pulverizer	:	
a.	Manufacturer	:	Bidder to Provide
b.	inside diameter (mm)	:	Bidder to Provide
c.	Thickness (mm)	:	Bidder to Provide
d.	Material	:	Bidder to Provide
e.	Height (mm)	:	Bidder to Provide
f.	Off set between feeder outlet. and centre line of limestone bunker, if any (m)	:	Bidder to Provide
7.5	Limestone Pulverizers	:	
A.	Design Data :	:	
	i) Manufacturer ii) Type and model iii) Total Number of mills iv) Mill maximum capacity (kg/hr) v) Size of raw limestone at mill inlet (mm) vi) Bond Index of Limestone vii) Fineness of pulverized coal through 325 mesh (%) viii) Pulverizer Speed (rpm) ix) Number of mills working x) Mill loading of working mills (% of maximum capacity) when no of mills as per (I) are operating xi) Mill Power Consumption xii) Mill Main Motor Rating (KW) xiii) Main Motor (Voltage/H2/rpm) xiv) Overall dimensions xv) Total weight including motor xvi) Solid Concentration (w/w %) in mill xvii) Method of Classification xviii) Ball Consumption (kg per ton of limestone) xix) Minimum ball diameter below which ball shall be replaced	:	Bidder to Provide
B.	Constructional Features	:	



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	i) Material / Thickness of Mill Wear Liners ii) Guaranteed Wear Life of Wear Liners iii) Estimated labour (in man hours) for replacement of wear liners) iv) Material / Diameter (mm) of Ball	:	Bidder to Provide
C.	Type of drive transmission	:	Bidder to Provide
	i) Make / Model of Gearbox ii) Speed Ratio	:	Bidder to Provide
D.	Type of coupling	:	Bidder to Provide
E.	Pulverizer lube oil system	:	Bidder to Provide
	a) No. of lube oil pumps per pulverizer b) No. of lube oil pumps working c) No. of oil coolers per pulverizer d) No. of oil coolers per working	:	Bidder to Provide
F.	Auxiliary Motor Rating (KW)	:	Bidder to Provide
G.	Mill speed with Auxiliary Motor (rpm)	:	Bidder to Provide
H.	Mill Separator Tank	:	
	i) Capacity (m3) ii) Material/Thickness (mm) iii) Lining Material/Thickness (mm) iv) No. of Agitators	:	Bidder to Provide
I.	Mill circuit Pump	:	
	i) No. per mill ii) No. of stand-by pumps iii) Make/Model iv) Impeller Type v) Material/Thickness (mm) of Impeller and lining vi) Casing Type vii) Material/Thickness (mm) of Casing/Lining viii) Rated Flow Head (m3/hr / mWCI) ix) Slurry Solid concentration (w/w %)	:	Bidder to Provide
J.	Agitators	:	
	i) No./Make/Model ii) Type iii) Speed (rpm) iv) Drive Mechanism v) Shaft Material vi) Material / Thickness (mm) of Impeller / Lining vii) Power Consumption viii) Motor Rating (KW) ix) Motor Speed (rpm)	:	Bidder to Provide



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TECHNICAL SPECIFICATION OF LIMESTONE GRINDING SYSTEM NTPC DADRI 2X490MW

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MILL DATA SHEET (1/2)		Dwg. No.	1 3			
		Rev.	1	2	3	4
		Date				
		Designed				
		Checked				
		Approved				
		Date			Checked	
		Designed			Approved	
		No. Req'd	Working		Spare	
		Total				
Regulation		Codes/Standards	Location. ☐ Indoor ☐ Outdoor			
Process Data						
Milling Capacity		t/h dry at Limestone Milling System Outlet (Guaranteed by Vendor)				
Feed Material						
Lump Size of Feed Material		Less than mm at Limestone Milling System inlet				
Limestone Hardness (Wi)		kW/Metric-ton				
Product Size		wt% slurry mesh(μm) % passing limestone				
Drying Heat Source		N/A				
Chemical Composition of Limestone		Moisture Content of Feed Material wt%				
CaCO ₃ %		Bulk Density of Feed Material kg/l				
MgCO ₃ %		Density of Feed Material kg/l				
SiO ₂ %		Repose Angle of Feed Material degree				
Al ₂ O ₃ %		Mill Recirculation load				
Fe ₂ O ₃ %						
MnO %						
SO ₃ %						
Others Balance						
Flow Sheet		Refer to Mill Data Sheet (2/2)				
Drum						
Size		mmDia. x	mmLength	Rotor Rev.	RPM	
Thickness		mm		Hold Up Volume	m ³	
Liner Inner Dia.		mm		Ball Size	mm	
Critical Speed		Ball Quantity				
Speed Reducing Gear		Air Clutch				
Reduction Ratio		Max. Transfer Torque				
Material						
Drum		Ball	Bearing Metal			
Liner		Gear				
Utilities						
Cooling Water		Req'd	m ³ /h	Pressure loss	Not larger than MPa	
Inlet temperature		°C		Supply press.	MPa	
Outlet temperature		°C		Design Pressure	MPa	
Process Water		m ³ /h				
Guarantee						
Allowable Sound Pressure level		dB(A) at		m distance		
Information						
Blanks shall be filled out by the Vendor.						
*1) Cooling Water is Water (Water Feed Pressure at B.L. is min. MPaG)						
*2) Process Water is Filtrate						
Cooling Water Composition						
pH						
Temp.		°C				
Conductivity		W/m°C				
Cl		mg/l				
SO ₄		mg/l				
Ca		mg/l				
Mg		mg/l				
Na		mg/l				



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		Dwg. No.	3/3			
		Rev.	1	2	3	4
		Date				
		Designed				
		Checked				
		Approved				
		Date		Checked		
		Designed		Approved		
		No. Req'd	Working		Spare	
			Total			
Regulation		Codes/Standards	Location.	☐ Indoor	☐ Outdoor	
Process Data						
Stream No.	1	2	3	4	5	6
Fluid	Lump Limestone	Limestone Ball Mill Overflow	Hydrocyclone Feed	Hydrocyclone Underflow Return	Process water to Ball Mill	Process water to Mill Tank
Total Flow (m ³ /h)						
Total Flow (kg/h)						
Temp (°C)						
Solids (wt%)						
Solids Comp. (wt%)						
CaSO ₄ ·2H ₂ O						
CaCO ₃						
Fly Ash						
Others						
Total						
pH	--					
Cl ⁻ (mg/l)	--					
Stream No.	7	8	9	10	11	12
Fluid	Limestone Product Slurry					
Total Flow (m ³ /h)						
Total Flow (kg/h)						
Temp (°C)						
Solids (wt%)						
Solids Comp. (wt%)						
CaSO ₄ ·2H ₂ O						
CaCO ₃						
Fly Ash						
Other						
Total						
pH						
Cl ⁻ (mg/l)						
Remarks						
Blanks shall be filled out by the Vendor.						
*1 Power consumption of motor shall be guaranteed for the design condition where limestone flow rate at milling system outlet is . t/h(dry base).						



**TECHNICAL SPECIFICATION OF LIMESTONE GRINDING SYSTEM
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SIGNATURE OF BIDDER -----

NAME -----

DESIGNATION -----



TECHNICAL SPECIFICATION OF LIMESTONE GRINDING SYSTEM
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24.3 ANNEXURE III- SCHEDULE OF GUARANTEES

Sl. No	Description	Data
1.	Rated capacity of Wet Ball Mill (WBM) TPH	: Bidder to Provide
2.	Limestone output fineness at rated capacity % thro 325 mesh	: Bidder to Provide
3.	Guaranteed power consumption at rated capacity kW	: Bidder to Provide
4.	Life of wet ball Mill wear parts Hours	: Bidder to Provide
5.	Guarantee ball consumption per ton of limestone throughput g/Ton	: Bidder to Provide
6.	Noise level at a distance of 1.0 meter horizontally from the equipment and 1.5 m above operating floor at site dB(A)	: Bidder to Provide
7.	Maximum vibration (peak to peak amplitude at site) microns	: Bidder to Provide
8.	Equipment Availability (%)	
	Equipment Availability for 120 days %	: Bidder to Provide
	Equipment Availability for 1 year %	: Bidder to Provide

In the event that the performance test is unsuccessful, bidder shall take necessary remedial action at his cost and the performance test shall be repeated.

SIGNATURE OF BIDDER _____

NAME _____

DESIGNATION _____



TECHNICAL SPECIFICATION OF LIMESTONE GRINDING SYSTEM
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24.4

ANNEXURE – IV- LIST OF DEVIATIONS/EXCEPTIONS TO THE ENQUIRY DOCUMENT

Sl No	Clause No	Page No	Description of Deviation

Note: Enlarge the table to incorporate items

SIGNATURE OF BIDDER -----

NAME -----

DESIGNATION -----



**TECHNICAL SPECIFICATION OF LIMESTONE GRINDING SYSTEM
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24.5 ANNEXURE -V

A) DOCUMENTS TO BE SUBMITTED ALONG WITH THE OFFER:

Sl. No.	Description	No of copies With proposal
1.	Enquiry Specification (signed)	1
2.	Price Sheet	1
3.	Anchor Plan & Civil foundation Loading details	1
4.	General Arrangement drawings indicating dimensional data with civil loads and pocket details	
5.	Data Sheet	1
6.	Performance curve	1
7.	P & I Diagram	
8.	Terminal point details	
9.	Annexure to qualification requirement- Annexure 3K.	1
10.	Proforma Packing List	1
11.	Shortest Manufacturing Time	1
12.	Approximate weight of each skid	1
13.	Reference plant details	1
14.	Required Electric power & other Utility List	1
15.	Deviation List	1
16.	General Assembly Drawing	1
17.	WBM and Motor Sizing Calculation	1
18.	Cross-sectional Drawing	1
19.	Sub-Vendor List / Make of all bought out items.	1
20.	Scope of Supply	1
21.	Quality Plan	1
22.	Spare List (Recommended)	1
23.	Start-up & Commissioning Spares	1
24.	List of Special Tools	1
25.	Delivery Schedule	1
26.	Test Arrangement & Test procedure	1
27.	T-S curve	1



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28.	Hoist/Crane requirement	1
29.	Catalogue	1
30.	Rotor GD ² (kg-m2)	1
31.	Calculation of Motor rating, Bearing capacity and selection of coupling	1
32.	Bill of material along with material and code.	1
33.	Overall space and headroom requirement with details of handling during Erection, operation & maintenance of the equipment	1
34.	Erection, Operation & Maintenance manual with lubrication schedule	1
35.	Procedure for shop / site performance tests	1
36.	Hoist / Crane requirement.	1
37.	Reference list of similar projects executed.	1
38.	Training program and schedule for BHEL/NTPC personnel	1
39.	Equipment maintenance schedules	1

B) DOCUMENTS TO BE SUBMITTED AFTER CONTRACT:

Sl. No.	Description	No of copies After award of contract	Delivery Time
1.	Utility Consumption	1	2 weeks after contract
2.	Foundation Data including Anchor plan	1	2 weeks after contract
3.	General arrangement drawings indicating dimension	1	2 weeks after contract
4.	Performance curve	2	2 weeks after contract
5.	Assembly drawings of each equipment	1	1 month after contract
6.	Cross section detail drawing	1	1 month after contract
7.	Data Sheet	1	2 weeks after contract
8.	Annexure to qualification requirement- Annexure 3K.	1	2 weeks after contract
9.	Lubricating oil list	1	2 months after contract
10.	Special tools list	1	2 months after contract



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Sl. No.	Description	No of copies After award of contract	Delivery Time
11.	Installation and assembly procedure	1	4 months after contract
12.	Inspection and Test Procedure	1	1 month after contract
13.	Inspection & Test record	1	In 2 weeks after test
14.	Inspection Certificate	1	In 2 weeks after test
15.	Sub vendors List	1	2 weeks after contract
16.	Manufacturing Schedule	1	2 weeks after contract
17.	Progress report	1	Every month
18.	Proforma Packing List	1	2 months prior to shipping
19.	Approximate weight of each	1	2 months after contract
20.	Required Electric power	2	2 weeks after contract
21.	WBM Sizing Calculation	1	2 weeks after contract
22.	Calculation for HT Motor power requirement for sizing HT Motor	1	2 weeks after contract
23.	Material Test Certificates	2	In 2 weeks after test
24.	Pre Commissioning Check List	2	4 months after contract
25.	Scope of Supply	2	2 weeks after contract
26.	Quality Plan	4	1 month after contract
27.	Operation and Maintenance Manual	10 hardcopies and 5 electronic copies in English	4 months after contract
28.	Spare List (Recommended)	1	1 month after contract
29.	Start-up & Commissioning	2	1 month after contract
30.	List of Special Tools	1	1 month after contract
31.	Delivery Schedule	1	2 weeks after contract
32.	Test Arrangement & Test procedure	2	1 month after contract
33.	T-S curve	2	2 weeks after contract
34.	P & I Diagram	2	2 weeks after contract
35.	Catalogue	2	2 weeks after contract
36.	Motor Data	1	1 month after contract
37.	Recommended repair procedure etc.	1	1 month after contract



**TECHNICAL SPECIFICATION OF LIMESTONE GRINDING SYSTEM
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Sl. No.	Description	No of copies After award of contract	Delivery Time
38.	Any unique installation instructions shall be noted on the submitted drawings or be provided as a separate document prior to the submission of the Operation and Maintenance Manual.	1	1 month after contract
40.	Erection schedule and component list.	1	1 month after contract

SIGNATURE OF BIDDER -----

NAME -----

DESIGNATION -----



**TECHNICAL SPECIFICATION OF LIMESTONE GRINDING SYSTEM
NTPC DADRI 2X490MW**

DADRI:FGD:LGS:R00

24.6 ANNEXURE-VI TECHNICAL SPECIFICATION FOR SEAWORTHY PACKING

TECHNICAL SPECIFICATION FOR SEAWORTHY PACKING

Refer to Specification No: PE-TS-888-100-A001 for detailed specification on Seaworthy packing.

SIGNATURE OF BIDDER _____

NAME _____

DESIGNATION _____



**TECHNICAL SPECIFICATION OF LIMESTONE GRINDING SYSTEM
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24.7 ANNEXURE-VII INSPECTION & TESTING

INSPECTION & TESTING

Refer to all clauses for Inspection & testing requirements.

SIGNATURE OF BIDDER _____

NAME _____

DESIGNATION _____



**TECHNICAL SPECIFICATION OF LIMESTONE GRINDING SYSTEM
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24.8 ANNEXURE-VIII HEALTH & SAFETY MANAGEMENT MANUAL

HEALTH & SAFETY MANAGEMENT MANUAL

Refer to all clauses for Health & Safety requirements.

SIGNATURE OF BIDDER -----

NAME -----

DESIGNATION -----



**TECHNICAL SPECIFICATION OF LIMESTONE GRINDING SYSTEM
NTPC DADRI 2X490MW**

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PART –II

O&M Spares and O&M Services For 10 years



TECHNICAL SPECIFICATION OF LIMESTONE GRINDING SYSTEM
NTPC DADRI 2X490MW

DADRI:FGD:LGS:R00

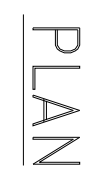
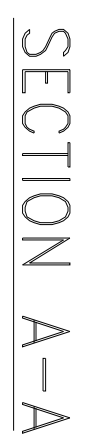
25	O&M Spares - 10 years
	<u>Scope of O&M Spares:</u> 1. All spares required for the upkeep of the equipment for 10 years' operation is in the scope of the bidder. 2. Bidder to list the total O&M spares requirement for 10 years' operation of "Limestone Grinding System (LGS)" under the following categories. a) Initial spares required to be stocked at site for 2 years' operation b) Anticipated list of spares which are required to be top up in the site spares inventory with the time period c) Anticipated list of consumables (wear parts, oil, grease etc.,) to be stocked at site with time period d) Bidder to quote the price for the above three categories separately. 3. Typical list of O&M spares required to be stocked at site for 2 years' operation is given below for bidder's reference: 1) Feeders a) Belt : 4 Sets b) Belt Drive Motor: 1 Nos c) Belt Drive Reducer : 2 Nos d) Speed Reducer Assembly : 1 set e) Weighing Instruments: 1 set f) Feeder Weighing Roll : 1 No g) Gravimetric Feeder Gate Actuator Assembly: 1 No h) Counter Assembly of feeder complete: 1 No i) Feeder head pulley assembly: 1 No j) Inlet span roller assembly: 6 No 2) Limestone Mills a) Mill Wear Parts (Liners) & Grinding Element: 1 set Note: One set of Mill Wear Parts (Liners) above is defined as under : $1 \text{ Set} = (\text{Grinding elements needed for complete replacement of one mill}) \times (8000 \times 1) / \text{GWL}$, rounded off to nearest higher whole number. Where : GWL = Guaranteed wear life of Mill Wear Parts as offered by the bidder. b) Mill Motor: NA c) Auxiliary Motor: 1 No d) Gear Box Internals (Including Bearings & seals) : 2 Sets e) Complete Gear Box : 1 set f) Mill Motor Bearings : 1 Set g) Lube oil/grease system



**TECHNICAL SPECIFICATION OF LIMESTONE GRINDING SYSTEM
NTPC DADRI 2X490MW**

DADRI:FGD:LGS:R00

	a. Pump Assembly: 2 no of each type b. Motor: 1 no of each type c. Pressure regulator: 1 no of each type d. Filters: 2 no's of each type e. Pump & Motor Coupling: 1 no of each type 3) Slurry Valves: 4 no of each type and size 4) Slurry Line Bends: 4 no of each type and size 5) Hydro-cyclones a) Hydro-cyclone isolation valve: 10% of each type or 1 no whichever is higher b) Hydro-cyclone: 10% of each type or 1 no whichever is higher c) Hydro-cyclone rubber lining: 10% of each type or 1 no whichever is higher 6) Slurry Pumps a) Impeller assembly: 4 no of each type b) Casing Liners: 1 no of each type c) Seals: 4 set of each type d) Bearings: 1 no of each type e) Motor: 1 no of each type f) Motor-Pump coupling: 1 no of each type 7) Mill Separator Tank Agitator: a) Impeller Assembly: 1 no of each type b) Bearing Assembly: 2 no of each type c) Motor: 1 no of each type d) Belt & Pulley (if applicable) : 2 no of each type - Gear Box Assembly(if applicable): 1 no of each type
26	O&M Service (AMC) - 10 years
	<u>SCOPE OF O & M Services (AMC):</u> 1. The Bidder to carry out maintenance of Limestone Grinding System supplied for a period of 10 years. 2. Bidder to quote AMC charges for every two years up to ten years. 3. All services call shall be attended at the earliest to meet the plant availability as per our technical specifications. 4. The Bidder has to take necessary approval from site In-charge for carrying out maintenance operation. 5. The bidder shall provide qualified technicians for carrying out the O&M services at site. Necessary site support will be provided by BHEL. TA/DA, boarding and lodging of such technicians attending to O&M service requirements shall be borne by the bidder and shall be included in their offer.



LEGEND:-

FCU	- FINISHED GROUND LEVEL
FTL	- FINISHED FLOOR LEVEL
T.O.P	- TOP OF PLATFORM
T.O.C	- TOP OF CONCRETE
B.O.B	- BOTTOM OF BASE PLATE
OPENING	- OPENING
NA	- NON-APPLICABLE
THK.	- THICK
TYP.	- TYPICAL
LSST	- LUGGING SLABBY STORAGE TANK
LS STD	- LUGGING STORAGE STD
EMB	- BALL MILL BUILDING

- REF. DWGS

REV.	DATE	ALTD.	CHD.	APPD.
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