



ENQ. NO. E-5495/2016.

DATE: 04/03/2017

DUE DATE
17/03/2017
2:00 PM (IST)

Subject: OPEN Tender Enquiry of VIS FOR MILL FOUNDATION as per Technical Specification/s No. PE-TS-412-615-C001 for 2X660 MW ENNORE SEZ STPP

BHEL invites offer from reputed Vendors (Refer pre-qualifying requirements enclosed in the Tender Documents uploaded on our websites www.bhelpem.com, www.bhel.com & CPP portal (www.eprocure.gov.in)) & on BHEL MUJUCTION SITE(<https://bheleps.buyjunction.in/BQEPS/security/getSignInAction.do> for VIS FOR MILL FOUNDATION of 2X660 MW ENNORE SEZ STPP .

Detailed scope of work & equipment details shall be as per technical specification PE-TS-412-615-C001 & other details hosted on above indicated BHEL-websites.

Your offer shall be submitted in two parts strictly as per Clause-2.0 of the "Instructions to Bidders" of GCC, Rev. 06 on BHEL MUJUCTION SITE(<https://bheleps.buyjunction.in/BQEPS/security/getSignInAction.do>) for the below mentioned equipment/system.

Item Description – VIS FOR MILL FOUNDATION	
Project	Technical Specification no.
2X660 MW ENNORE SEZ STPP	PE-TS-412-615-C001

Your best quotation/offer for the above requirement, in line with our terms and conditions (hosted on our website, as indicated above), should be uploaded on <https://bheleps.buyjunction.in/BQEPS/security/getSignInAction.do>

It shall be the responsibility of the bidder to ensure that the tender is delivered on or before the due date by 2:00 PM (IST). The offer has to be deposited in tender box only. Part-I bids shall be opened at 3:00 PM (IST) on the due date in the presence of authorized representatives of the bidders, who may like to be present.

Important Note to be considered by All Bidders:

1. The offers of the bidders who are on the banned list as also the offers of the bidders, who engage the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL web site http://www.bhel.com/vender_registration/vender.php.
2. All corrigenda, addenda, amendments, time extensions, clarifications, etc. to the tender will be hosted on BHEL website (www.bhel.com) & BHEL-PEM website (www.bhelpem.com) only & BHEL MUJUCTION SITE (<https://bheleps.buyjunction.in/BQEPS/security/getSignInAction.do>). Bidders should regularly visit websites to keep themselves updated.

AKASH VERMA, (PG-II-2, ENGINEER)
BHEL/PS-Project Engineering Management,
Power Project Engineering Institute,
Plot no. 25, Sector - 16A, Noida (UP) 201301, INDIA
(Ph. No.) 0120-4368960
(E-Mail.) akashverma@bhelpem.co.in

Akash Verma
04/3/17

Regd. Office
BHEL House Siri Fort
New Delhi-110049



ENQ. NO. E-5495/2016.

DATE: 04/03/2017

TERMS AND CONDITIONS:

1. Bidders are advised to go through the GCC Rev-06 (<http://bhelpem.com/Documents/GCC/GCC-Rev.06.pdf>) while submitting the offers.
2. Bidders have to note that Integrity Pact is not applicable.
3. **Pre-Qualifying Requirements:**
Bidders have to provide the required details as per TECHNICAL PRE-QUALIFICATION REQUIREMENT CRITERIA (enclosed as NIT Tender Documents) in their Techno-Commercial offer. Bids of only those bidders shall be evaluated who meet the Technical Pre-Qualifying requirements.
4. Bidders have to submit their offers in line with clause no. 2.0 of "Instructions to Bidders" of GCC Rev. 06.
5. Seller/ Contractor shall not dispatch any material before issue of MDCC by BHEL/ CUSTOMER. For details refer clause no. 15.0 of "General Commercial Terms & Conditions" of GCC Rev. 06.
6. Bidders have to note that TERMS AND CONDITIONS of the tender shall be as per Notice Inviting Tender (NIT) conditions, Special Conditions of Contract (SCC) of Project & General Conditions of Contracts (GCC, Rev. 06)
Order of precedence shall be as per clause NO. 35.0 Of GCC Rev. 06 (GENERAL COMMERCIAL TERMS & CONDITIONS).
7. Price bid (Part-II) opening/RA participation of those bidders, who are not approved by end Customer, shall be subjected to approval of bidder by the customer. Same shall be taken up by BHEL with the customer based on the credentials/reference list being submitted by the bidder.
8. Bidders have to note that BHEL reserves the right to go for Reverse Auction (RA) instead of opening the sealed envelope price bid, submitted by the bidder. This will be decided after techno-commercial evaluation. For details refer clause no. 13.0 of "Instructions to Bidders" of GCC Rev. 06. Applicable guidelines are uploaded at following link:-
http://www.bhel.com/vender_registration/pdf/Guidelines%20for%20Reverse%20Auction-2016.pdf. Bidders to read carefully these guideline

9. **Delivery Terms (Project-wise):**

Delivery: Drawings/ Documents submission : Initial drawings/documents is to be submitted by vendor within Two (02) weeks from the date of PO and every re-submission within Ten (10) days of receipt of comments (incorporating all the BHEL/Customer comments).

In case there are delays of submission/re-submission of drawings/documents beyond above stated schedule, that much days of delay would be reduced from delivery period.

AKASH VERMA, (PG-II-2, ENGINEER)
BHEL/PS-Project Engineering Management,
Power Project Engineering Institute,
Plot no. 25, Sector - 16A, Noida (UP) 201301, INDIA
(Ph. No.) 0120-4368960
(E-Mail.) akashverma@bhhelpem.co.in

Akash Verma
04/03/17

Regd. Office
BHEL House Siri Fort
New Delhi-110049



ENQ. NO. E-5495/2016.

DATE: 04/03/2017

Equipment Supply: Within 06 Months from CAT-I approval (F.O.R. dispatch station basis for Indian vendor and C&F basis for Foreign Vendor).

Supervision of E&C: Supplier has to deploy its Service Engineer / Supervisor at project site within 15 days of BHEL intimation.

10. Price schedule of said package includes design engineering charges. It is proposed to include the following payment terms for design engineering charges.
"100% on certification from engineering on completion of design & Engineering works".
11. CIF is not available for subject package of subject project. For any import, if any, shall be on merit basis.
12. Prices shall remain firm as per GCC REV 06
13. For Indigenous Supplies, Bidders have to quote freight charges in percentage of quoted Total Ex-works prices.
14. The Bidder along with its associate/ collaborators/ sub-contractors/ sub-vendors/ consultants/ service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website <http://www.bhel.com> and shall immediately bring to the notice of BHEL Management about any fraud or suspected fraud as soon as it comes to their notice.
15. **Evaluation shall be done on over all L1 basis (total cost to BHEL).**
16. Bidders to note that following forms the part of Tender Documents :
 - General Conditions of Contract (GCC) Rev. 06
 - Technical Specification No. PE-TS-412-615-C001
 - Price format
 - Special Conditions of Contract
 - Technical PQR.
 - NIT CONDITIONS & other EnclosuresBidders to note that offers shall be submitted strictly in accordance with the requirements of the above Tender Documents & all the above Tender Documents along with post-bid agreements/MoMs (during Techno-Commercial evaluation) shall automatically become the part of the Order/Contract after its finalisation.
17. Bidders to note that Deviations (if any) are to be listed only in 'Annexure II: Deviation Sheet' of GCC Rev. 06. Any deviation mentioned or shown separately or found hidden in offer, will not be taken cognizance of.
18. Foreign bidders quoting along with their Authorised Indian associates to comply with BHEL corporate circular AA:MM:AGENCY dated 06th August 2010 for the guidelines regarding dealings with Indian agents of Foreign bidders (as enclosed).

AKASH VERMA, (PG-II-2, ENGINEER)
BHEL/PS-Project Engineering Management,
Power Project Engineering Institute,
Plot no. 25, Sector - 16A, Noida (UP) 201301, INDIA
(Ph. No.) 0120-4368960
(E-Mail.) akashverma@bhelpem.co.in

Sharma
04/03/17

Regd. Office
BHEL House Siri Fort
New Delhi-110049



ENQ. NO. E-5495/2016.

DATE: 04/03/2017

19. In case of joint bidding, Bidders to furnish scope matrix which should be clearly defined between foreign bidder and their Indian representative along with the offer for the Main Supply and Erection & Commissioning.
20. Online Registration Portal is operational in BHEL. Non-registered Vendors, who wish to apply for registration with BHEL-PEM, have to apply through Online Registration Portal available at www.bhelpem.com -> vendor section -> Online Supplier Registration. All credentials and/or documents duly signed and stamped related to registration has to be uploaded on the website and submit the application for registration. One set of hard copy of the filled-up SRF downloaded from Online Registration Portal duly signed and stamped has to be submitted.
21. All correspondence thereof, shall be addressed to the undersigned by name & designation and sent at the following address :-

AKASH VERMA,(PG-II-2,ENGINEER)
M/s. Bharat Heavy Electricals Ltd.,
Project Engineering Management,
Power Project Engineering Institute,
HRD & ESI Complex, Plot No 25,
Sector-16 A, Noida-201301,U.P.,INDIA
E-MAIL: akashverma@bhelpem.co.in
Ph. No. PHONE 0120-4368960

SHREEDHAR SINGH,(PG-II-2,SR
MANAGER)
M/s. Bharat Heavy Electricals Ltd.,
Project Engineering Management,
Power Project Engineering Institute,
HRD & ESI Complex, Plot No 25,
Sector-16A,Noida-201301,U.P.,INDIA
E-MAIL: shreedharsingh@bhelpem.co.in
Ph. No. PHONE 0120-4368720

22. IMPORTANT INSTRUCTION TO BIDDERS IN CASE OF REVERSE AUCTION

The Bidders has to quote the Single Price (i.e. Total Cost to BHEL) in Reverse Auction. Price are to be inclusive of Packing & Forwarding charges, all the routine & type tests as per tender scope, ED + cess, CST against C-form/VAT, Freight as applicable, insurance charges, etc. including loading (if any). De-loading (if any) shall be done in line with SCC of the project.

Following Condition in Reverse Auction shall be treated as follows:

Case-I (Taxes & duties and freight are identical in Reverse Auction & Conventional Price Bid)

Resolution: - Ordering shall be done on lower of the two bids (RA closing price & Conventional Price Bid). After successful completion of reverse auction L1 bidder shall be asked to submit break up in line with taxes & duties, freight quoted in their Conventional Price Bid.

Case-II (In case Bidder has quoted 'CST' in Conventional Price Bid and applicable Tax is 'VAT')

Resolution: - "Total Cost to BHEL shall be maintained by reducing proportion amount in Ex-works quoted by Bidder".

Case-III (In case Bidder has quoted 'VAT' in Conventional Price Bid and applicable Tax is 'CST')

Resolution: - Conventional Bid/RA quoted Prices shall be reduced and CST will be allowed.

Statutory variation shall be applicable.

AKASH VERMA,(PG-II-2,ENGINEER)
BHEL/PS-Project Engineering Management,
Power Project Engineering Institute,
Plot no. 25, Sector - 16A, Noida (UP) 201301, INDIA
(Ph. No.) 0120-4368960
(E-Mail) akashverma@bhelpem.co.in

Sharma
04/03/17

Regd. Office
BHEL House Siri Fort
New Delhi-110049



ENQ. NO. E-5495/2016.

DATE: 04/03/2017

Any new tax structure (like Goods & Services Tax) as and when implemented by the Government shall become applicable in addition to or in lieu of existing tax structure.

Note: - Applicable taxes & duties shall be determined as per location of works of bidder.

23. Mill Foundation shall be supported on vibration isolation system consisting of steel helical springs and viscous dampers.

Thanking You.

Yours faithfully,

For and on behalf of BHEL

AKASH VERMA, (PG-II-2, SR. ENGINEER)

Enclosures:

1. Technical Specification No. PE-TS-412-615-C001
2. Price format
3. Technical PQR.
4. BHEL corporate circular AA:MM:AGENCY dated 06th August 2010
5. GCC REV 06 available on www.bhelpem.com
6. SCC REV 01
7. RA guideline uploaded on link
http://www.bhel.com/vender_registration/pdf/Guidelines%20for%20Reverse%20Auction-2016.pdf
8. INPUT DRAWING

AKASH VERMA, (PG-II-2, ENGINEER)
BHEL/PS-Project Engineering Management,
Power Project Engineering Institute,
Plot no. 25, Sector - 16A, Noida (UP) 201301, INDIA
(Ph. No.) 0120-4368960
(E-Mail) akashverma@bhelpem.co.in

Regd. Office
BHEL House Siri Fort
New Delhi-110049

**TAMIL NADU GENERATION AND DISTRIBUTION
CORPORATION**
**2X660 MW ENNORE SEZ COAL BASED STPP AT ASH DYKE OF NCTPS,
CHENNAI**

**TECHNICAL SPECIFICATION
FOR
VIBRATION ISOLATION SYSTEM
FOR**

MILL (14 NOS) FOUNDATION

SPECIFICATION NO.: PE-TS-412-615-C001 (Rev 0)



**BHARAT HEAVY ELECTRICALS LIMITED
POWER SECTOR
PROJECT ENGINEERING MANAGEMENT
NOIDA-201301**



TITLE :
TECHNICAL SPECIFICATION FOR
VIS FOR MILL (14 NOS) FOUNDATION

SPECIFICATION NO. PE-TS-412-615-C001

SECTION

REV. NO. 0

DATE 07.12.2016

CONTENTS

This Technical Specification consists of two Sections:

SECTION I

- **SPECIFIC TECHNICAL REQUIREMENTS.**

SECTION II

- **STANDARD TECHNICAL SPECIFICATION.**
- **REFERENCE QUALITY PLAN**



TITLE :
TECHNICAL SPECIFICATION FOR
VIS FOR MILL (14 NOS.) FOUNDATION

SPECIFICATION NO. PE-TS-412-615-C001

SECTION I

REV. NO. 0

DATE 20.02.2017

SHEET 1 of 7

COMPLIANCE CERTIFICATE

The bidder shall confirm compliance to the following by signing/ stamping this compliance certificate and furnishing same with the offer.

01. The scope of supply, technical details, construction features, design parameters etc. shall be as per technical specification & there are no exclusion/ deviation with regard to same.
02. There are no deviation with respect to specification other than those furnished in the 'schedule of deviations.'
03. Only those technical submittals which are specifically asked for in NIT to be submitted at tender stage shall be considered as part of offer. Any other submission, even if made, shall not be considered as part of offer.
04. Any comments/ clarifications on technical/ inspection requirements furnished as part of bidder's covering letter shall not be considered by BHEL, and bidder's offer shall be construed to be in conformance with the specification.
05. Any changes made by the bidder in the price schedule with respect to the description/ quantities from those given in 'BOQ-Cum-Price schedule' of the specification shall not be considered (i.e., technical description & quantities as per the specification shall prevail).
06. QP will be subject to BHEL/Customer approval in the event of order & customer hold points for inspection/ testing shall be marked in the QP at the contract stage. Inspection/ testing shall be witnessed as per same apart from review of various test certificates/ Inspection records etc.

The charges for 3rd party inspection (Lloyds, or equivalent) for imported components shall be included in the base price of the equipment by the bidder.

07. All drawings/data – sheets etc. to be submitted during contract shall be subject to BHEL/Customer review/ approval.
08. GA drawings/ datasheet / QP as submitted with offer at tender stage are for reference purpose only and shall be subject to approval during contract stage.
09. All sub vendors shall be subject to BHEL/CUSTOMER approval.
10. Any special tools & tackles, if required, shall be in bidder's scope.



TITLE :
TECHNICAL SPECIFICATION FOR
VIS FOR MILL (14 NOS.) FOUNDATION

SPECIFICATION NO. PE-TS-412-615-C001

SECTION I

REV. NO. 0

DATE 20.02.2017

SHEET 2 of 7

SECTION-I
SPECIFIC TECHNICAL REQUIREMENTS



TITLE :
TECHNICAL SPECIFICATION FOR
VIS FOR MILL (14 NOS.) FOUNDATION

SPECIFICATION NO. PE-TS-412-615-C001

SECTION I

REV. NO. 0

DATE 20.02.2017

SHEET 3 of 7

1.0 SCOPE

1.01 SUPPLY OF VIBRATION ISOLATION SYSTEM (VIS):

- i) Vibration Isolation System (VIS)
- ii) Tools and facilities required for erection and commissioning including seaworthy packing & transportation etc. complete.

1.02 SUPERVISION OF ERECTION AND COMMISSIONING OF THE VIS.

Vendor shall deploy experienced manpower for setting the VIS in position and final adjustments after machine installation. Vendor shall also confirm the readiness at site before deploying the manpower for supervision of erection. Vendor shall furnish proposed erection strategy of the entire system and procedure for replacement of VIS and downtime involved.

1.03 DESIGN & ENGINEERING FOR THE VIBRATION ISOLATION SYSTEM AND TOP DECK (INCLUDED IN VENDOR'S SCOPE)

Design and engineering shall consist of the following:

- i) Selection of Vibration Isolation System (VIS).
- ii) Static and dynamic analysis and design of RCC deck slab (supporting arrangement for the equipment supported on VIS)
- iii) Calculation of loads on supporting structure along with their points of application and deflection limitations.
- iv) Calculation should establish that not more than 10 % of the dynamic loads are transmitted to the substructure supporting VIS and that the foundation system meets the amplitude/frequency requirements.
- v) Checking of stiffness for structure supported on VIS.

1.04 DOCUMENTATION

Vendor shall furnish following documents:

- i) Bill of materials of various elements included in the supply along with detailed specifications of system and various items included in supply and standards local or international standards to which they conform.
- ii) General Arrangement (GA) drawing showing location and supporting details of VIS. **(Included in vendor's scope).**
- iii) GA and reinforced concrete details drawings for deck slab including bar bending schedule. **(Included in vendor's scope).**
- iv) Embedment drawings showing location of all embedment and their details pertaining to RCC deck slab-**(Included in vendor's scope).**
- v) Design document. **(Included in vendor's scope).**
- vi) Methodology of providing the shuttering and its removal as well as concreting of deck slab, installation of VIS and sequence of above operation.
- vii) Installation and maintenance manual indicating equipment, procedures, etc. necessary for installation/maintenance of VIS.
- viii) List of power plants where such systems have been successfully installed for such applications.
- ix) Performance certificate from the end user/customer for at least two successfully executed contracts for such system.



TITLE :
TECHNICAL SPECIFICATION FOR
VIS FOR MILL (14 NOS.) FOUNDATION

SPECIFICATION NO. PE-TS-412-615-C001

SECTION I

REV. NO. 0

DATE 20.02.2017

SHEET 4 of 7

2.0 GENERAL:

- 2.1 In case of any conflict between section –I and section-II, section-I will prevail over section-II.
- 2.2 Vibration Isolation system (VIS) shall consist of steel helical springs and viscous damper.
- 2.3 The isolation efficiency of the foundation system comprising RCC deck and steel helical springs shall be at least 90%.
- 2.4 Bidder shall quote based on the input drawings as per Table-1 to satisfy the design requirement as per the relevant applicable codes in annexure- A and section - II.

Table-1

<u>Sl. No</u>	<u>TITLE</u>	<u>DRAWING NO.</u>
1	GENERAL ARRANGEMENT OF HP-1103 MILL (WITH PLANETARY GEAR BOX)	0-00-620-86080 (R0)
2	FOUNDATION PLAN & LOADING OF HP-1103 MILL (WITH PLANETARY GEAR BOX)	0-00-610-86081 (R1)

- 2.7 Bidder shall furnish the information about the entire range of spring units, damper units and spring cum damper units, manufactured by the vendor. The information to be furnished should include the load carrying capacity, stiffness (vertical & horizontal), damping resistance, dimension of spring and damper units as well as quality plan.

- 2.8 The steel helical springs and viscous damper supplied should be of proven make.

3.0 DOCUMENTS TO BE SUBMITTED BY VENDOR

- 3.1 Document submission schedule after the award of contract shall be as below:

PACKAGE	BHEL DRG NO	DRG TITLE	Drg Submission schedule
VIS FOR MILL FOUNDATION	Primary Documents - affecting Manufacturing/ Delivery Directly		
	PE-V0-412-615-C201	Data sheet of VIS for Mill Foundation	R-0 within Two (02) weeks from LOI/PO & subsequent revisions within 10 days of comments received from BHEL/customer.
	PE-V0-412-615-C202	QAP of VIS for Mill Foundation	
	PE-V0-412-615-C203	Test certificate of VIS for Mill Foundation	
	PE-V0-412-615-C204	Static & dynamic Analysis of VIS for Mill Foundation	



TITLE :
TECHNICAL SPECIFICATION FOR
VIS FOR MILL (14 NOS.) FOUNDATION

SPECIFICATION NO. PE-TS-412-615-C001

SECTION I

REV. NO. 0

DATE 20.02.2017

SHEET 5 of 7

PE-DG-412-615-C001	Civil GA drwg of Mill Foundation	
Secondary Documents - NOT affecting Manufacturing / Delivery Directly		
PE-DG-412-615-C002	RC details of Top Deck of Mill Foundation	R-0 within Two (02) weeks of Cat-I(or)II approval on GA drawing

3.2 The documents shall be submitted as mentioned below:

- Soft copy of all documents/drawings shall be furnished in pdf and AutoCAD format as applicable.
- Hard copies shall also be submitted.
- Submission of civil drawings/documents shall be as mentioned in the table-2.

Table-2

	Drawing	Document
For Approval	Soft copy + 4 nos. hard copies	Soft copy + 4 nos. hard copies
For RFC	Soft copy + 7 nos. hard copies	

4.0 SEISMIC LOADING:

The site is located in Zone III as per IS: 1893/Part I -2003 & IS: 1893- Part II- 2005.

Zone factor (Z) shall be 0.16

Importance factor shall be considered as 1.75.

5.0 WIND LOADING:

Basic wind speed at project site is 50 m/sec. as per IS: 875-1987 (Part 3).

Probability factor, (k1 risk coefficient), terrain, height and structure size factor, k2 and topography factor, k3 shall be as per IS:875.

6.0 MATERIAL OF CONSTRUCTION

- Minimum grade of concrete: M35.
- Reinforcing bars will be TMT bars of grade Fe500 conforming to IS-1786.

7.0 MATERIAL (DESIGN & SUPPLY)

7.1 Steel helical springs and viscous dampers shall consist of:

- Steel helical spring units and viscous dampers along with viscous liquid including associated auxiliaries for installation of the spring units and dampers like steel shims, adhesive pads, etc.
- Frames for pre-stressing of spring elements.
- Suitable hydraulic jack system including electric pumps, high pressure tubes etc. required for



TITLE :
TECHNICAL SPECIFICATION FOR
VIS FOR MILL (14 NOS.) FOUNDATION

SPECIFICATION NO. PE-TS-412-615-C001

SECTION I

REV. NO. 0

DATE 20.02.2017

SHEET 6 of 7

the erection, alignment etc. of the spring units. One set of extra hydraulic jacks, and hand Operated pumps shall also be provided.

- iv. Any other items may be required for the pre-stressing, erection, release of pre-stress, alignment and commissioning of the steel helical springs and viscous dampers.

7.2 The sizes of the spring units, damper units, spring cum damper units should be such that groups of such units can be accommodated on column heads in case of elevated foundations and on Pedestals/walls in case of foundations at ground level.

7.3 The steel helical springs and viscous dampers shall be designed for ensuring "fit and forget" guarantee.

8.0 MANUFACTURING & TESTING

8.1 Complete manufacturing and testing of the steel helical springs and viscous dampers shall be done at the manufacturing shop of the vendor. For this purpose the vendor shall submit the detailed programme for approval of customer and take up the manufacturing / testing after approval of such programme. The programme (quality plan) shall include:

- i. Manufacturing schedule and quality check exercised during manufacturing.
- ii. Detail of test to be carried out at the manufacturing shop with its schedule.
- iii. Special requirements, if any, regarding concreting of top deck.
- iv. Complete step- by- step procedure covering the installation and commissioning of the spring system.
- v. Manuals for erection, commissioning, testing and maintenance of the steel helical springs and viscous dampers.
- vi. A checklist for confirming the readiness of the civil fronts for erection of steel helical springs and viscous dampers.
- vii. Checklist for equipment required at each stage of erection.
- viii. Bill of materials (data sheet) of various elements such as spring units, viscous dampers, with their rating, stiffness etc. included in the supply.
- ix. Bill of material (data sheet) for frames for pre stressing, hydraulic jack including electric pump, high pressure tubes, hand operated pump etc. with their rating and numbers.
- x. Any other details which may be necessary to facilitate design and construction of the foundations / structures.

8.2 The springs shall conform to codes DIN 2089 and DIN 2096. The quality assurance and inspection procedure shall be finalised on the basis of the above codes and the quality plans be drawn accordingly.

9.0 ERECTION AND COMMISSIONING AND SUPERVISION

9.1 Complete erection and commissioning of the steel helical springs and viscous dampers including pre-stressing of elements, placing of elements in position, checking clearances on the shuttering of the RCC top deck, releasing of pre-stress in spring elements, making final adjustments and alignments etc. all shall be supervised by a specialist supervisor.

9.2 The scope of work shall be deemed to include all activities, which may not have been explicitly mentioned but are reasonably implied for the successful commissioning of steel helical springs and viscous dampers.

10.0 REALIGNMENT OF SPRING SYSTEM

If any realignment of the steel helical springs and viscous dampers is required to be done for aligning the shaft or for any other reasons during the first one year of operation from the date of commissioning of the machine, the same shall be done by the vendor.



TITLE :
TECHNICAL SPECIFICATION FOR
VIS FOR MILL (14 NOS.) FOUNDATION

SPECIFICATION NO. PE-TS-412-615-C001

SECTION I

REV. NO. 0

DATE 20.02.2017

SHEET 7 of 7

11.0 TRANSPORTATION

- 11.1 Steel helical springs and viscous dampers shall be suitably protected, coated, covered, boxed and crated to prevent damage or deterioration during transit and handling.
- 11.2 The vendor shall be responsible for any loss or damage during transportation, handling.

12.0 INSPECTION REQUIREMENTS

- 12.1 Minimum requirement for quality plan shall be as per quality plan attached in section –II of the specification. Quality plan shall be subject to approval during detail engineering. No price implication shall be admissible to QP approval by BHEL/Customer.
- 12.2 Inspection for imported item shall be done from third party like Lloyd or equivalent and certificate shall be submitted for review of BHEL.
- 12.3 In case of new bidder, bidder may need to carry out damping test, stiffness test etc. during customer approval stage before price bid opening. No price implication shall be admissible for these tests.

ANNEXURE-A

Codes and Standards

Latest revision of following codes shall be used for the design of the spring-supported foundations:

IS: 456	Codes practice for plain and reinforced concrete.
IS: 2974	Code of practice for design and construction of machine foundations.
IS: 1893	Criteria for earthquake resistant design of structures.
DIN: 4024	Machine foundations; Flexible supporting structures for machine with rotating masses
DIN: 2089	Helical compression springs out of round wire and rod: calculation & design.
DIN: 2096	Helical compression springs out of round wire and rod: quality requirements for hot formed compression springs.
VDI: 2056	Criteria for assessing mechanical vibrations of machine.
VDI: 2060	Criteria for assessing the state of balance of rotating rigid bodies.



TITLE :
TECHNICAL SPECIFICATION FOR
VIBRATION ISOLATION SYSTEM

SPECIFICATION NO. PE-TS-999-600-C026

SECTION II

REV. NO. 0

DATE 14.06.2016

SHEET 1 OF 3

SECTION-II

STANDARD TECHNICAL SPECIFICATION



TITLE :
**TECHNICAL SPECIFICATION FOR
VIBRATION ISOLATION SYSTEM**

SPECIFICATION NO. PE-TS-999-600-C026

SECTION II

REV. NO. 0 DATE 14.06.2016

SHEET 2 OF 3

1.0 SCOPE :

This section covers supply, supervision of erection commissioning & design engineering of the vibration isolation system (VIS) suitable for ID/PA/FD Fans/ TDBFP/MDBFP/ TURBOGENERATORS/ MILLS. The vibration isolation system shall be of proven make and should be in successful operation for similar machines.

2.0 SUPPLY OF VIBRATION ISOLATION SYSTEM (VIS)

VIS shall be supplied complete along with recommended spares if any. The selection of VIS shall be done by the vendor, in case not done by customer so that the amplitude at bearing locations are within permissible limits as per machine supplier recommendation or ISO 10816 whichever is governing and no dynamic loads are transferred to structure supporting VIS. Minimum 90% isolation shall be achieved and the system shall be capable of withstanding Seismic/Wind forces.

3.0 SUPERVISION OF ERECTION AND COMMISSIONING

3.01 Manual

Vendor shall supply installation and maintenance manual indicating equipment procedures etc. necessary for installation and replacement of VIS with downtime involved.

3.02 Tools and facilities

Vendor shall supply all tools and facilities as required for successful erection and commissioning of VIS. Vendor shall deploy experienced manpower to supervise successful installation of VIS.

4.0 DESIGN ENGINEERING OF VIBRATION ISOLATION SYSTEM

4.01 Dynamic Analysis

The dynamic analysis shall consist of free vibration analysis and forced vibration analysis. Isolation efficiency of at least 90% shall be obtained. The fundamental natural frequency shall be sufficiently above or below the frequency corresponding to operating speed. Vibration amplitude shall be calculated at all bearing locations and shall satisfy the permissible limits as per ISO 10816 or as specified by the machine supplier. Transient analysis shall be carried out for the short circuit / blade failure condition with an appropriate force function if required by the machine supplier. The forces for which substructure is to be designed shall be furnished.

4.02 Static Analysis

The static analysis shall include the

- a) Dead weights of machine stationary parts
- b) Dead weights of machine rotary parts
- c) Loads due to machine power torque
- d) Loads due to maximum allowable unbalance
- e) Temperature loads
- f) Loads due to blade unbalance/short circuit
- g) Erection loads
- h) Seismic loads
- i) Any other loads given by the supplier

Various loads combinations must be investigated to obtain the most severe loads for



TITLE :
TECHNICAL SPECIFICATION FOR
VIBRATION ISOLATION SYSTEM

SPECIFICATION NO. PE-TS-999-600-C026

SECTION II

REV. NO. 0

DATE 14.06.2016

SHEET 3 OF 3

foundation design purpose as per relevant IS codes or as per machine supplier recommendation whichever is more critical.

4.03 CHECK FOR SHAFT MISALIGNMENT

Foundation deck must be adequately stiff to withstand all operating load combinations without excessively upsetting the rotor shaft alignment. The structural design must carefully be analysed for relative deflection for the members supporting machine shaft to satisfy the limits as given by machine supplier if any.

4.04 DESIGN OF RCC DECK SUPPORTED ON VIS

Vendor shall provide General arrangement drawing of deck showing location and supporting detail of VIS, all embedment and their details as per the machine supplier drawing.
RCC design shall be done by working stress method for all machine foundations. Minimum reinforcement shall be governed by IS: 2974 as well IS:456.
All documents/drawings shall be supplied in 25 (twenty five) prints. All calculations shall be supplied in 6 (six) sets. Soft copy of the drawings in Auto Cad shall be supplied along with the soft copy of the documents supplied. All documentation shall be in English language and all RCC/structural design shall be conforming to the relevant Indian Standard Code of practice.

5.0 QUALITY PLAN AND TEST CERTIFICATE

Vendor shall furnish the quality plan and Test certificate for the hardware in their scope of supply. The quality plan shall be reviewed by BHEL/Consultant wherein the inspection and hold points shall be indicated. Vendor shall submit test certificate based on approved quality plan. Despatch of material by the vendor shall only take place after the receipt of Material Dispatch Clearance Certificate (MDCC) issued by BHEL/Consultant on the basis of test reports/test certificates submitted by the Vendor after manufacture.

6.0 ENVIRONMENTAL PROTECTION

VIS shall be suitably protected against environmental damages e.g. abrasion, discolouration, corrosion, oily water etc. to give a prolonged service matching the plant life.



TITLE :
TECHNICAL SPECIFICATION FOR
VIS FOR MILL (14 NOS) FOUNDATION

SPECIFICATION NO. PE-TS-412-615-C001

SECTION II

REV. NO. 0

DATE 20.02.2017

SECTION-II

REFERENCE QUALITY PLAN

MANUFACTURING QUALITY PLAN (I-QAP)											
Manufacturer's Name & Address:				ITEM : Vibration Isolation System Equipment: MILLS Spring Unit:			QP No: Rev : Date : Page :				
Sl. No.	COMPONENT AND OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY		REMARKS
1		3	4	5	6	7	8	9	10	C	11
1	Materials								D	M	
1.1	For boxes	Chemical/Mechanical	Minor	Verify	One / Heat	IS 2062 /DIN EN 10025/JVHT02/SAILMA 350 HI/SAILMA 350 or equivalent 50 Cr V 4 As per DIN 17221 or 51 Cr V 4 As per EN10089	Same as column "7"	Certificate	✓	V	V
1.2	For Springs	a) Chemical b) Grain Size c) NMI	Major	Verify	One / Lot	ASTM E 112	ASTM E 112	Certificate	✓	V	V
1.3	Springs at Manufacturer's end	d) Micro structure Hardness	Major	Verify	One / Lot	IS 4163	ASTM E 112	Certificate	✓	V	V
1.4	Springs at Manufacturer's end	Decarburization	Major	Test	One / Lot	DIN 17221 or equi IS 1500	Tempered Martensite 415-460 BHN	Certificate	✓	V	V
1.5	Springs at Manufacturer's end	NDE after compression	Major	Test	100%	IS 6396	Max. depth 0.5% of bar dia - partial	Certificate	✓	V	V
1.6	Springs (at vendor end)	Spring Rate	Major	Test	AQL 4.0	IS 3703	No cracks	Certificate	✓	V	V
1.7	Adhesive pads (ute), Steel shims	Dimensions (mm)	Minor	Measure / Visual	5%	DIN 2096	Same as column "7"	Lab Register	✓	P	V
1.8	Viscoliquid	Penetration speed (mm/sec)	Major	Test	Sample	Drawing/ Data Sheet	DIN 7168 Sg	Internal Record	✓	P	V
1.9	Studs & Nuts	Chemical	Minor	Verify	One / Lot	DIN 53019 or equivalent	Same as column "7"	Certificate	✓	V	V
2	In Process Inspection	Dimensions (mm)	Minor	Measure	5%	IS 1367 (Grade 6.8 & Class 6) IS 4218 (Tolerance Class 6g & 6H)	Same as column "7"	Lab Test Report	✓	V	V
2.1	Welding	Visual / Surface exam (mm)	Major	Visual / Measure	10% Random	Annexure-1 (attached)	Same as column "7"	Certificate	✓	P	V
2.2	Boxes	NDE	Major	DPT	10 % Random	ASTM / E 165	Same as column "7"	Certificate	✓	P	V
3	Final Inspection	Dimensions (mm)	Major	Measure	10%	Drawing / Data sheet	EN ISO 13920 C	Internal record	✓	P	V
3.1	Shot Blasting	Picture	Major	Compare	10%	EN ISO 12944-4	SA - 2 ½	Certificate	✓	P	V
3.2	Painting	Thickness (180 microns)	Major	Measure / Visual	10%	Annexure-2 (attached)	Same as column "7"	Certificate	✓	P	V
3.3	Spring Unit	Dimensions (mm)	Minor	Measure	10%	Drawing / Datasheet	EN ISO 13920 C	Internal Record	✓	P	W
3.4	Constant of Spring Units (Vertical;Kv)	Load Vs Displacement (kN/mm)	Critical	Test	10%	Drawing/Data sheet	DIN 2096 & DIN2089	Certificate	✓	P	W
3.5	Document Control	Verification of above documents (TC/IR)	Major	Compare	All	MQP	Same as column "7"	Certificate	✓	P	V
	Packing / Marking	Visual	Major	Visual / Compare	100%	As per vendor's standard	Same as column "7"	Certificate	✓	P	
MANUFACTURER/ SUB-CONTRACTOR		CONTRACTOR		DOC. NO							
LEGEND: # RECORDS, IDENTIFIED WITH 'TICK' SHALL BE ESSENTIALLY INCLUDED BY MANUFACTURER IN QA DOCUMENTATION D: DOCUMENT M: MANUFACTURER/ SUB-CONTRACTOR C: MAIN SUPPLIER P: PERFORM W: WITNESS AND V: VERIFICATION											
REVIEWED BY											
NAME & SIGNATURE OF APPROVING AUTHORITY WITH SEAL											

ANNEXURE - 1
WELDING

WELDING DETAILS

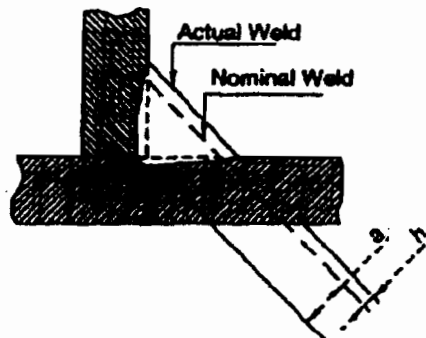
SI
No

Imperfection
Designation

Outside status

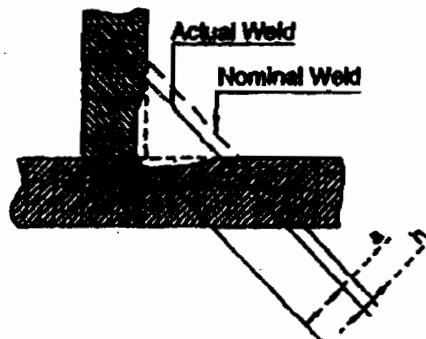
Limits for Imperfection with
reference to quality level:
DIN EN 25817 / D

1. Excessive convexity



$$h \leq 1\text{mm} + 0.25 b : \text{max. } 5\text{mm}$$

2. Fillet weld having a throat
thickness smaller than the
nominal value

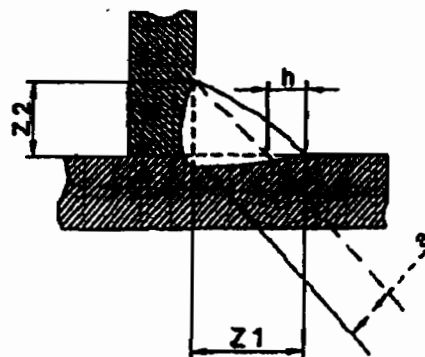


A fillet weld with an apparent throat thickness smaller than that prescribed should not be regarded as being imperfect if the actual throat thickness with a compensating greater depth of penetration complies with the nominal value.

Short imperfections: $h \leq 0.3$
 $\text{mm} + 0.1a ; \text{max. } 2\text{mm}$

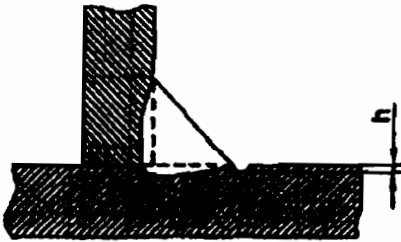
Long imperfections:
Not Permitted

3. Excessive asymmetry
of fillet weld



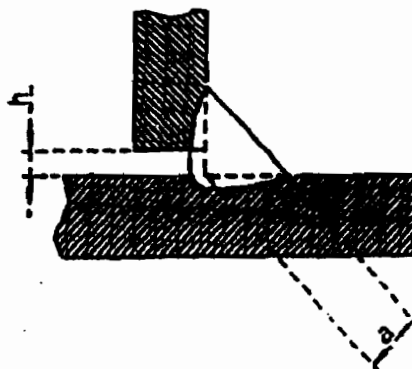
It is assumed that the asymmetric fillet weld has not been expressly prescribed.

$$h \leq 2\text{mm} + 0.2 a$$

WELDING DETAILS			Limits for Imperfection with reference to quality level DIN EN 25817 / D
SI No	Imperfection Designation	Outside status	
4.	Undercut	 Smooth transition is required	$h \leq 1.5 \text{ mm}$
5.	Gas pores and porosity	The following conditions and limits for imperfections shall be fulfilled a) Maximum dimension of the summation of the projected or surface crack area of the imperfection. b) Maximum dimension of a single pore for -butt welds -fillet welds c) Maximum dimension for a single pore	4% $d \leq 0.5 r$ $d \leq 0.5 a$ 5 mm
6.	Localised (clustered) porosity	The total pore area within the cluster should be summed and calculated as a percentage of the greater of the two areas; an envelop surrounding all the pores or a circle with a diameter corresponding to the weld width. The permitted porous area should be local. The possibility of masking other imperfections should be taken into consideration. The following conditions and limits for imperfections shall be fulfilled: a) Maximum dimension of the summation of the projected or surface crack area of the imperfection b) Maximum dimension of a single pore for -butt weld -fillet weld c) Maximum dimension for localised clustered porosity.	16% $d \leq 0.5 s$ $d \leq 0.5 a$ 4 mm

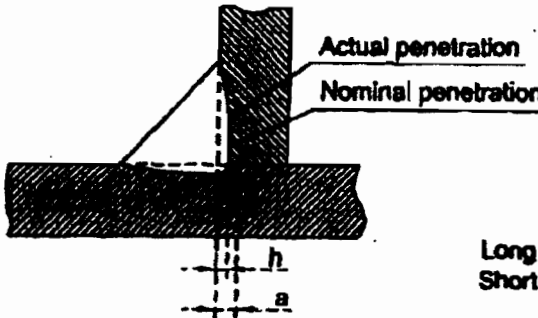
<u>WELDING DETAILS</u>			Limits for Imperfection with reference to quality level. DIN EN 25817 / D
Sl No	Imperfection Designation	Outside status	
7.	Elongated cavities, worm holes	Long imperfections for -butt welds -fillet welds In any case, maximum dimension for elongated cavities, worm holes	$h \leq 0.5 s$ $h \leq 0.5 a$ 2mm
		Short imperfections for -butt welds -fillet welds In any case, maximum dimension for elongated cavities, worm holes	$h \leq 0.5 s$ $h \leq 0.5 a$ 4mm or Not Larger Than Thickness (NLTT)
8.	Solid inclusions (other than copper)	Long imperfections for -butt welds -fillet welds In any case, maximum dimension for elongated cavities, worm holes	$h \leq 0.5 s$ $h \leq 0.5 a$ 2mm
		Short imperfections for -butt welds -fillet welds In any case, maximum dimension for elongated cavities, worm holes	$h \leq 0.5 s$ $h \leq 0.5 a$ 4mm or Not Larger Than Thickness (NLTT)
9.	Lack of fusion (Incomplete fusion)		Permitted, but only intermittently and not breaking the surfaces

10. Bad fit-up, fillet weld



An excessive or insufficient gap between the parts to be joined.
Gaps exceeding the appropriate limit may in cases be compensated for by a corresponding increase in the throat.

$h \leq 1\text{mm} + 0.3 a$
max. 4mm

Sl No		Imperfection Designation	Outside status	Limits for Imperfection with reference to quality level: DIN EN 25817 / D
11.	Incomplete penetration			Long imperfections: Not permitted Short imperfections: $h \leq 0.2 a$, max. 2mm
12.	Cracks	All types of cracks		Not Permitted
13.	Crater cracks			Permitted
14.	Spatters	Fused welding splashes are material thickness (drops) fused to the basic material or welding seam.		Permissible
15.	Stray flash or arc strike	Ignition points are local fuses caused by the electric arc on the surface of the basic material or welding seam.		Permissible

Abbreviations

- a nominal fillet weld throat thickness (fillet thickness), in mm
- b width of weld reinforcement, in mm
- d pore diameter in mm
- h size (height or width) of imperfection, in mm
- l length of imperfection, in mm
- s nominal butt weld thickness or, in the case of partial penetration, the prescribed depth of penetration, in mm
- t tube-wall- or plate thickness, in mm
- z leg length of fillet welds (in case of isosceles-right angle triangular section $z = a / 2$) in mm

ANNEXURE-2

CORROSION PROTECTION PAINTING

REQUIREMENTS

1. Painting of steel parts

All steel parts must be coated immediately after shot blasting according to EN-ISO 12944-4. Surface must be free of fat.

- a. Material:
M/s Southfield paints –RAL 6011 Green or equivalent
M/s Toyo paints – RAL 1000 Black or equivalent
M/s Akzo Nobel Coatings India Pvt. Ltd. – RAL 1004 Yellow colour or equivalent
- b. Execution:
Painting is performed as given below:
Layer thickness:
-Standard:
One layer coating thickness of minimum 100 microns.
-Long term protection:
Two layers coating to total thickness of minimum 180 microns.
- c. Mixing of paint compounds:
The compounds (mother paint, accelerator, thinner) must be mixed according to instructions of the paint manufacture. The mixing procedure has to be adjusted to the ambient climatic situation.
- d. Coating:
Coating is performed with spray gun. Baking temperature 80 °C, furnace exposing time 45 minutes.
- e. Coating thickness control:
Measurements to be taken at 5 random points. Acceptable thickness is 10% below specified thickness.

2. Springs

All the springs must be powder coated by "Electrostatic powder coating spray process" (EPS).

- a. Preparation:
Springs must be oil free
- b. Execution:
Electrostatic spray coating with an epoxy polyester powder. Baking temperature 190 °C
+10 °C, furnace exposing time of 40 minutes.
Colour: Black.
- c. Coating thickness:
Coating thickness must be minimum of 70 microns.

Note.

1. The colour of paint is subjected to as per customer requirement.



SPECIAL CONDITIONS OF CONTRACT (REV 01)

**FOR 2 X 660 MW ENNORE SEZ COAL BASED STPP AT ASH DYKE OF
NCTPS, CHENNAI, Job No. 412**

These Conditions shall be read in conjunction with General Condition of Contract (GCC) enclosed along with the tender enquiry. In case of any conflict or inconsistency, the requirement of SCC shall prevail over the GCC.

1.0	Project Name	2 X 660 MW ENNORE SEZ COAL BASED STPP
2.0	Ultimate Customer (TANGEDCO)	Tamilnadu Generation and Distribution Corporation (TANGEDCO)
3.0	Location of Plant	Site for main plant is located near ennore port (approx. 5 km) and approx. 5 km from Athipattu Pudunagar, State : Tamil Nadu, Nearest Airport: Chennai (60 km), Nearest Seaport: Ennore Port (Approx. 5 km), Nearest Railway Station: Athipattu Pudunagar (Approx. 5 kms), Site is adjacent to the Chennai-Howrah broad gauge line. Access to site: Distance from Chennai city is 35 km. All weather roads from Pattamandri on the Thiruvottiyar district highway.
4.0	Consignee Address / BHEL Site Office Address	Construction Manager BHEL Site-Office 2 x 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS Vayalur Village, Ambathur Taluk, Thiruvallur District, Tamil Nadu.
	Notes:	1. Consignee address in LR should be strictly as per Sl. No. 04. 2. Vendor to note that to effect "Sale in Transit", BHEL shall issue "Delivery Note" to the Transporter for transferring the ownership from BHEL to customer (TANGEDCO). 3. It is Vendor's responsibility to ensure availability of trucks well in advance for dispatch of material to meet contractual delivery requirement. Delivery note shall be carried by transporter along with other dispatch documents
5.0	Buyer and Paying Authority	A) <u>For Inter-State sales (where CST is applicable):</u> 1. For those packages, for which PO is placed by BHEL-PEM - <u>PEM, Noida</u> . 2. For those packages for which PO is placed by BHEL-PSSR & LOA is issued by BHEL-PEM - <u>BHEL-PSSR, Chennai</u> .

(Signature)

(Signature)

Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
POWER SECTOR, PROJECT ENGINEERING MANAGEMENT
Power Project Engg. Institute, Plot No. 25, Sector 16 - A,
HRDI & ESI Complex, NOIDA 201 301 (UP)



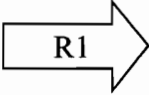
		B) FOR Intra-State sales (where VAT is applicable): 1. For those packages, for which PO is placed by BHEL-PEM- <u>Paying Authority shall be BHEL-PEM, Noida. However Buyer will be BHEL HPBP, TIRUCHIRAPALLI.</u> Detailed requirements are enclosed as Annexure I which are to be followed strictly. 2. For those packages for which PO is placed by BHEL-PSSR & LOA is issued by BHEL-PEM - <u>Paying Authority shall be BHEL-PSSR, Chennai. However Buyer will be BHEL HPBP, TIRUCHIRAPALLI.</u> Detailed requirements are enclosed as Annexure I which are to be followed strictly.
6.0	Mode of Dispatch	By Road/Rail/Sea on Door Delivery and freight Pre-Paid Basis.
7.0	Road Permit Required	Not applicable
8.0	Transit Insurance	In BHEL Scope. Vendor shall inform the following details of dispatches to the Underwriter (refer details below) under intimation to BHEL-PEM and BHEL Site office: (1) Policy No. (2) Consignee Name. (3) Consignment Details (items with their weights and value (in INR)). (4) Project Name and P.O. No. (5) LR No. and date, Despatch origin and destination details, Inv. No..
	Policy No. R1 →	SCE - 500300/44/15/04/40000004 MARINE - 500300/21/15/02/00000005 Policy period : 15/04/2015 - 14/04/2018
	Underwriters R1 →	M/s. United India Insurance Company – New Delhi D-24 & E-25, 2nd Floor Himalaya House 23 KG Marg, Connaught Place, New Delhi
9.0	BHEL-PEM TIN No.	09765702874
10.0	Customer CST & VAT Nos.	TANGEDCO CST No. - 1248670 TANGEDCO TIN / VAT No. - 33181706465 TANGEDCO TAN No. - CHET 11 952 D TANGEDCO PAN No. - AADCT4784E
11.0	Unloading at site	- By BHEL site office for Supply packages. (The Vendor shall furnish LR wise Gross Wt. and net weight of the consignment for the purpose of handling the consignment by BHEL site loading/unloading contractor). - By Vendor for Turnkey i.e. Supply and Erection & Commissioning Packages.

Raj

Swati

Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
POWER SECTOR, PROJECT ENGINEERING MANAGEMENT
Power Project Engg. Institute, Plot No. 25, Sector 16 - A,
HRDI & ESI Complex, NOIDA 201 301 (UP)



12.0	Storage at site	- By BHEL site for Supply packages. - By Vendor for Turnkey i.e. Supply and Erection & Commissioning Packages.
13.0	Movement of Material within Site	- By BHEL site for Supply packages. - By Vendor for Turnkey i.e. Supply and Erection & Commissioning Packages.
14.0	Provision of facilities at Site (Applicable for Turnkey Packages) 	Construction Power: HT power supply (33KV/433 V or 11KV/433 V) shall be made available for erection work at the rates prevailing at the time of usage on chargeable basis as per HT tariff V (Temporary construction supply) rates applicable as per TNERC tariff order. Fuel and start-up power required during testing, commissioning, PG testing, re-testing etc. shall be provided at free of cost. Construction Water: Construction water shall be available at one point within the plant boundary on chargeable basis subject to availability.
15.0	Inspection Agency (Domestic supplies)	Later
	Inspection Agency (Imported supplies)	Later

Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
POWER SECTOR, PROJECT ENGINEERING MANAGEMENT
Power Project Engg. Institute, Plot No. 25, Sector 16 - A,
HRDI & ESI Complex, NOIDA 201 301 (UP)



16.0	Dispatch Documents required (to be furnished by Vendor for payment)	<u>For Despatch Payment</u> For materials originating from Indian Territory (a). One (1) original and Six (6) copies of the clean rail/lorry receipt. For payment Receipted LR (signed & stamped)/ confirmation from site regarding receipt of packages/ Boxes original / copy. (b). One (1) original and Six (6) copies of signed Invoices (Paying Authority along with TIN No. should be mentioned, for VAT cases Annexure-I to be followed). (c). One (1) original and Seven (7) copies of Challan and Packing List (clearly showing number of packages, gross weight and net weight). (d). Six (6) copies of inspection certificate, if any issued by the customer. (e). Eight (8) copies of Customer/BHEL MDCC. (f). Six (6) copies of Approved Test Certificates if any. (g). Delivery order- Two (2) copies. (h). Guarantee Certificate – One (1) Original + One (1) copy. (i). Insurance Intimation - Two (2) copies. (j). CQIR / Inspection Reports – One (1) Original + One (1) copy. (k). PVC Calculation and copy of all applicable indices, if PVC applicable. – Two (2) copies. For materials originating from non-Indian Territory (a). Three (3) original and Seven (7) copies of clean bill of lading or One (1) clean original Airway Bill & Four (4) copies, in case of air freight. (b). One (1) original and Six (6) copies of signed Invoices (Paying Authority along with TIN No. should be Mentioned). (c). One (1) original and Seven (7) copies of Packing List (clearly showing number of packages, gross weight and net weight).
------	---	--

Raj

Swati

Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
POWER SECTOR, PROJECT ENGINEERING MANAGEMENT
Power Project Engg. Institute, Plot No. 25, Sector 16 - A,
HRDI & ESI Complex, NOIDA 201 301 (UP)



		(d). Six (6) copies of certificate of country of origin. (e). Eight (8) copies of Customer/BHEL MDCC. (f). Six (6) copies of inspection certificate, if any, issued by the customer/his authorised representative. (g). Six (6) copies of certificate from the vendor to the effect that drawings and catalogues for customs clearance purpose have been kept with the packages for shipment. (h). Six (6) copies of certificate from the vendor to the effect that the contents in each case are not less than that entered in the invoices and guaranteed as new and as per the relevant technical specifications. (i) Shipping Specification – One (1) copy. (j). Quality Certificate – One (1) copy. (k). Approved Test Certificates if any. - Six (6) copies. (l). Guarantee Certificate – One (1) Original + One (1) copy. (m). Inspection Reports – One (1) Original + One (1) copy. (n). PVC Calculation and copy of all applicable indices, if PVC applicable. – Two (2) copies. For Claiming Freight, MRC & Services Payments refer GCC.
17.0	Material Receipt Certificate (MRC).	FOR Packages wherever E&C is in the scope of Vendor, The vendor shall arrange Material Receipt Certificate from the project site, duly signed by Customer and BHEL-Site after receipt & physical verification of the material at site. FOR Supply Packages, Material Receipt Certificate shall be arranged by BHEL-PEM. Vendor to provide copy of receipted LR's to enable BHEL-PEM to obtain MRC from site.




Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
POWER SECTOR, PROJECT ENGINEERING MANAGEMENT
Power Project Engg. Institute, Plot No. 25, Sector 16 - A,
HRDI & ESI Complex, NOIDA 201 301 (UP)



18.A	Taxes & Duties (For Domestic Bidder) (Concessional Custom Duty against EC except for packages mentioned at sr. no. 18 C)	All bidders/vendors to note that this project is a Non-Mega (ICB) power Project. However Essentiality certificate shall be issued by TANGEDCO (Ultimate customer) for availing concessional custom duty under Project Import Regulations. Essentiality certificate shall be issued by TANGEDCO (Ultimate customer) for the specified items to be imported by the vendor, limited to CIF content mentioned in the NIT, for availing concessional custom duty. The bidder has to indicate in their offer, the import contents (if any) for the package i.e. list of items along with qty., currency of import, country of import & CIF value. The benefits availed in concessional custom duty must be passed onto BHEL in their offer. Availability of CIF for the packages, if any, shall be intimated in NIT.
		Concessional Sales Tax against issuance and exchange of form 'C' & 'E1/E2' / VAT, as applicable, are to be quoted by the bidder in their offer. Bidders has to note that in order to derive the total Landed Cost to BHEL following pricing elements shall also be considered in evaluation: i. ED (as applicable on self-manufactured items)- Except for packages mentioned at Sr. no. 18C. ii. CST/VAT (as applicable), iii. Service Tax (For Supply Packages). iv. Freight (including service Tax), However R1 i. Service tax quoted in case of Turnkey packages shall not be considered for evaluation purpose. However same shall be considered for ordering purpose. VAT for Intra-state dispatch shall be paid subject to conditions specified in Annexure I. "Wherever cenvat credit, if applicable could not be availed by BHEL within statutory time limit of six months(as per cenvat credit rule,2014) due to delay in submission of invoices or for any other reason attributable to bidder/contractor, liability towards loss of such cenvat credit(Excise duty/service tax etc) should be passed on to bidders/contractors." Entry Tax/ Octroi: Not Applicable.

Dij

Swati

Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
POWER SECTOR, PROJECT ENGINEERING MANAGEMENT
Power Project Engg. Institute, Plot No. 25, Sector 16 - A,
HRDI & ESI Complex, NOIDA 201 301 (UP)



18.B	Taxes & Duties (For Order Directly to Foreign Bidders)	In case of Order on foreign supplier, the dispatches shall be FOB (Port of Dispatch) basis and the Taxes Duties in the country of dispatch shall be borne by Foreign Bidder & to be accounted in the prices quoted to BHEL/PEM/NOIDA. Evaluation shall be done as per provisions of GCC.
18.C	Custom duty (CD) & Excise duty ED for water treatment plant. R1 →	Custom duty (CD) & Excise duty (ED) are exempted against exemption certificate for following packages as per GOI notification 14/2004-Custom dated 08/01/2004 and 3/2004-Central Excise dated 08/01/2014 respectively :- 1. Oxygen dosing system 2. Chemical Dosing system 3. Condensate polishing unit 4. Pre-Treatment plant 5. Effluent treatment plant 6. Electrolytic Chlorination plant 7. Sewage Treatment plant Necessary documents shall be facilitated by TANGEDCO from concerned Government authorities for availing relevant exemption by BHEL. Exemption certificate shall be arranged by BHEL and provided to vendor for their self-manufactured as well as sub-vendor items directly dispatchable to site. Vendor should quote their price considering benefits of NIL Custom duty and NIL Excise duty. However vendor shall indicate the list of imported items, quantity and value of imported items in Indian Rupee and Foreign currency, amount of CD, rate of CD alongwith the country of import in their bid.
19.0	Packing, Identification & marking	• The supplier shall include and provide for securely protecting and packing the materials so as to avoid loss or damage during handling & transport by air, sea, rail and road. • All packing shall allow for easy removal and checking at site. Special precaution shall be taken to prevent rusting of steel and iron parts during transit by sea. Gas seals or other materials shall be adopted by the Contractor for protection against moisture during transit. • The number of each package in a shipment shall be shown in fraction, numerator showing number of the package and the denominator showing total number of packages in a lot / consignment. The packages number shall be generally prepared in the sequence in which they will be required for erection. • Each package delivered under the Contract shall be marked by and at the expense of the supplier and such marking must be distinct and in English language (all previous irrelevant markings being carefully obliterated). Such marking shall show the description and quantity of contents, the name and

Day

Swati

Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
POWER SECTOR, PROJECT ENGINEERING MANAGEMENT
Power Project Engg. Institute, Plot No. 25, Sector 16 - A,
HRDI & ESI Complex, NOIDA 201 301 (UP)



address of consignee, the gross weight and net weight of the package, the name of the Contractor with a distinctive number of mark sufficient for purposes of identification. All markings shall be carried out with such materials as to ensure quickness of drying, fastness and indelibility. Each equipment or parts of equipment shall, when shipped or railed or otherwise dispatched be tagged with reference to the assembly drawings and corresponding part numbers. Each bale or package shall contain a packing note quoting specifically the name of the Contractor, the number and date of contract and the name of the office placing the contract, nomenclature of the stores and include a schedule of parts for each complete equipment giving the part numbers with reference to the assembly drawing and the quantity of each part, drawings nos. and tag numbers.

- Rotor bearings should not be used as a support while packing.
- Besides wherever necessary, packing shall bear a special marking "TOP", "BOTTOM", "DO NOT TURN OVER", "KEEP DRY", "HANDLE WITH CARE", etc.
- All packing cases, containers (excluding marine container), packing and other similar materials shall be new.
- Notwithstanding anything stated in this clause, the Contractor shall be entirely responsible for loss, damage or depreciation or deterioration to the materials & supplies due to faulty and/or insecure packing.
- One copy of respective standard manufacturer's erection instruction/operation instruction manual shall be kept in each package/container for immediate reference.
- Each and every package box shall be marked with the following, as a minimum:

(i). Name and address of Consignee :

(ii). Project reference :

(iii). Contract No.:

(iv). Packing No.: (1/10, 2/10, 3/10 when there are 10 packages For one consignment)

(v). Net Weight/Gross Weight :

(vi). Port of Loading :

(vii). Destination Port : Ennore Port

(viii). Packing Mark : [symbols indicating "TOP" and other special markings as per

clause 10.10.(4) & 10.10.(6) above]

(ix). Type of Equipment :

"E" (for Equipment supply)

"T" (for Tools & Tackles)

"S" (for Mandatory Spares)

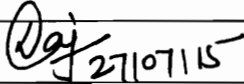
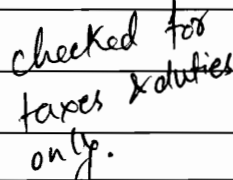
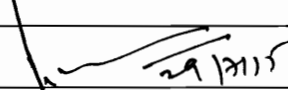
- Two copies of packing list should be kept in case/package No. 1 of each consignment of the goods and four copies in each case (three inside the box and one copy in a special packet at the outer side of the box).

Day

Swati

Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
POWER SECTOR, PROJECT ENGINEERING MANAGEMENT
Power Project Engg. Institute, Plot No. 25, Sector 16 - A,
HRDI & ESI Complex, NOIDA 201 301 (UP)



20.0	Commissioning spares	The commissioning spares shall be properly packed separately in separate box and each spare shall be properly tagged giving details (to match the description given in the packing slip) to facilitate their proper identification. Three copies of packing list is to be kept inside the box and one copy in a special packet at the outer side of the Box.		
21.0	Mandatory Spares	The Mandatory spares shall be properly packed separately in separate box indicating Mandatory Spares in bold letters and each spare shall be properly tagged giving details i.e. item number of the equipment in line with the Ultimate Customer Contract & Number per item (to match the description given in the packing slip) to facilitate their proper identification by ultimate customer M/s TANGEDCO. Three copies of packing list along with Manufacturing drawing no. Reference, Catalogue reference etc. is to be kept inside the box and one copy in a special packet at the outer side of the Box.		
22.0	Submission of Final Drawing / Documents along with O&M Manual, Type Test Certificates (if any)	As per GCC/ Technical specification/ Kickoff meeting.		
	Prepared By	Checked & Reviewed By	Vetted By Finance	Approved By
Name:	RAJEEV KUMAR	ANUJ KUMAR	SWATI NAIR	PERMINDER SINGH
Designation:	SR.ENGINEER	DGM	checked for taxes & duties only.	AGM/DH
Signature:				
Date:	27/07/15	27/7/15	28/7/15	29/7/15

Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
POWER SECTOR, PROJECT ENGINEERING MANAGEMENT
Power Project Engg. Institute, Plot No. 25, Sector 16 - A,
HRDI & ESI Complex, NOIDA 201 301 (UP)



Annexure-I

SPECIAL CONDITIONS OF CONTRACT (REV 01)

2 X 660 MW ENNORE SEZ COAL BASED STPP, Job No. 412

In order to avail the benefit of input tax credit available to BHEL in case of VAT leviable on intra-state transaction between BHEL and vendor, & to fulfill the compliances as per requirements of applicable State's VAT law, the following modality shall be applicable:

BHEL has identified a nodal agency in each State to take care of VAT compliances in the State in which project is located. For the subject project nodal agency shall be:

BHEL HPBP, TIRUCHIRAPALLI – 620014, Tamil Nadu
VAT TIN No. 33243560005

Nodal agency is defined as Buyer in such cases, where VAT is applicable.

Vendors' original tax invoice for intra State transactions is one of important documents for availing Input Tax credit. In this regard the following may be noted by all vendors for strict compliance:

- As a general rule, a tax invoice must be original, must contain vendor's TIN No with full address, invoice no & date, product description with unit rate, quantity, value, VAT rate, VAT amount, gross value of bill, **buyer i.e. BHEL's address with TIN No.** (as given above) special marking like "Original" and/or "valid for input credit"/ Buyer can take credit against this" etc as per applicable State VAT law.
- Please note that BHEL's address and TIN to be mentioned in vendors tax invoice shall be **principal place of business & applicable TIN No. of nodal agency of BHEL, as given above.** In no case the vendors, invoices shall be addressed to BHEL PEM nor shall they contain our TIN as buyer.
- As original tax invoice of vendors are to be furnished to nodal unit for assessment/VAT audit purposes, extra copy of Original invoice is required to be submitted by vendors for retaining with bank payment voucher.
- Original tax invoice along with extra copy of Original Tax invoice in line with respective state VAT law shall be essential document to be submitted by vendor for claiming payment.
- Vendor shall also furnish a certificate/statement/document as prescribed under applicable State VAT law. Please note that some of the States requires additional certificate/documents e.g. Haryana requires certificate in form C-4 in addition to original tax invoice.
- Please note that reimbursement/payment of VAT shall be subject to furnishing of Vat complaint tax invoice and other certificate/document as per applicable State VAT law.
- Tax invoice must show Vat rate & VAT amount separately and in no case all inclusive prices is to be shown in the tax invoice since input credit is not admissible in case VAT is not indicated separately.
- In case vendor is unable to furnish Vat compliant tax invoice & other certificate/document, VAT shall not be reimbursed by BHEL.

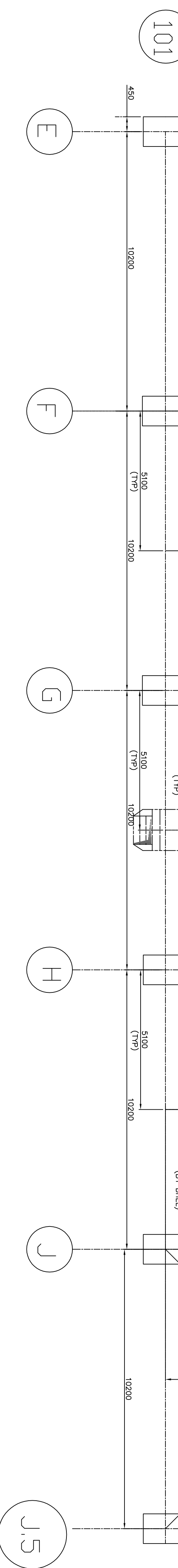
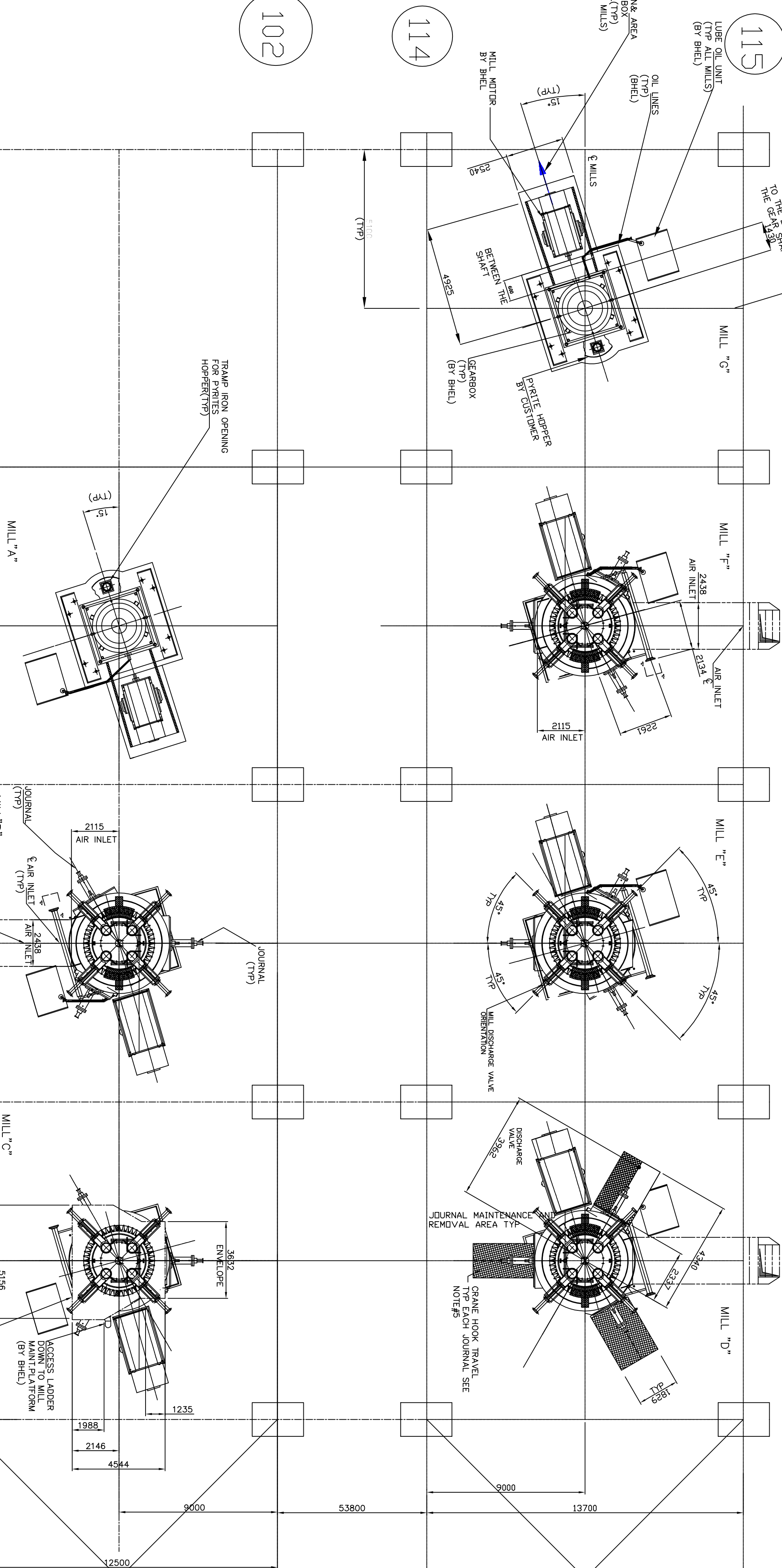
R1

Where the supplies are made from within the same state where the project is located, the vendor has to provide VAT tax invoice for such supplies even if the price quoted is all inclusive.

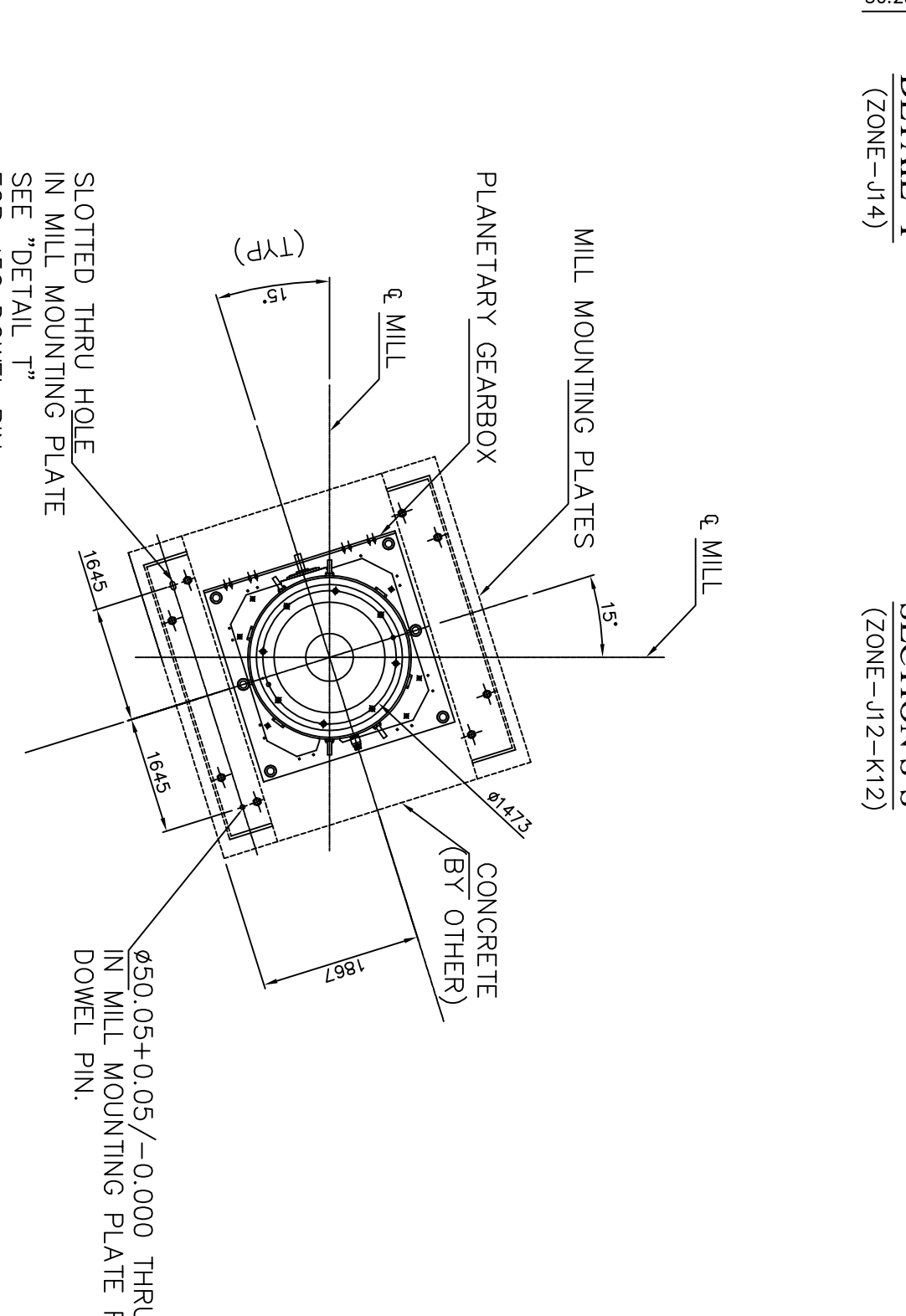
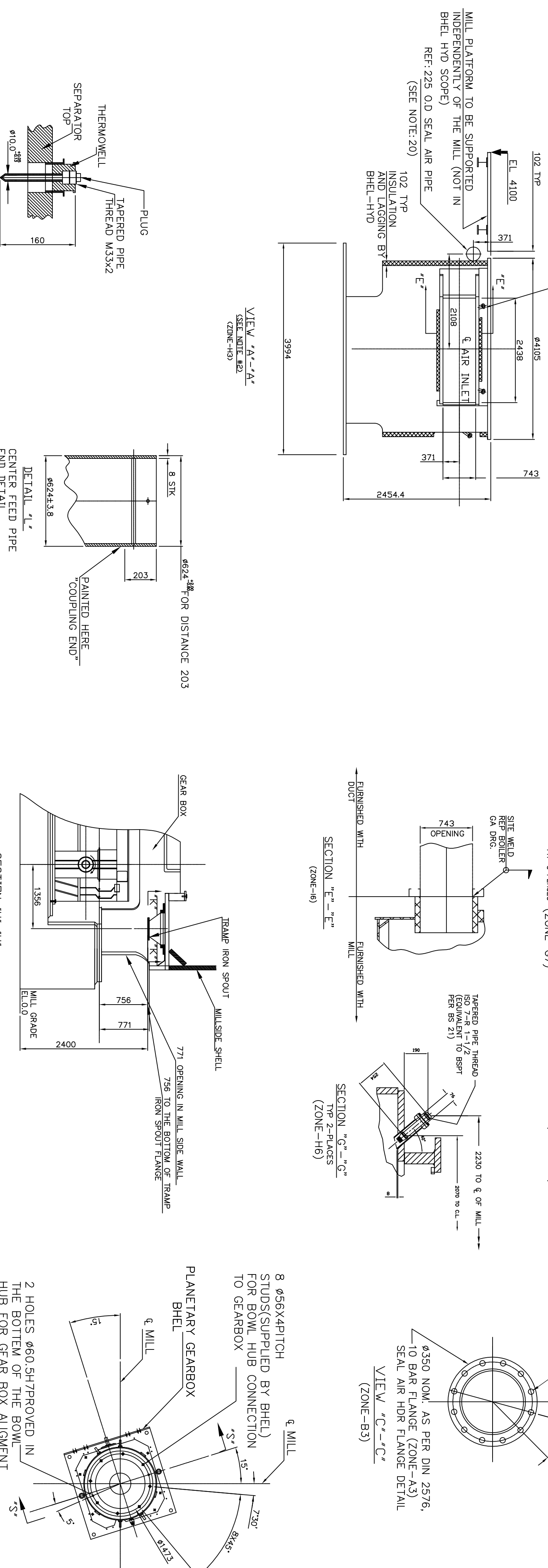
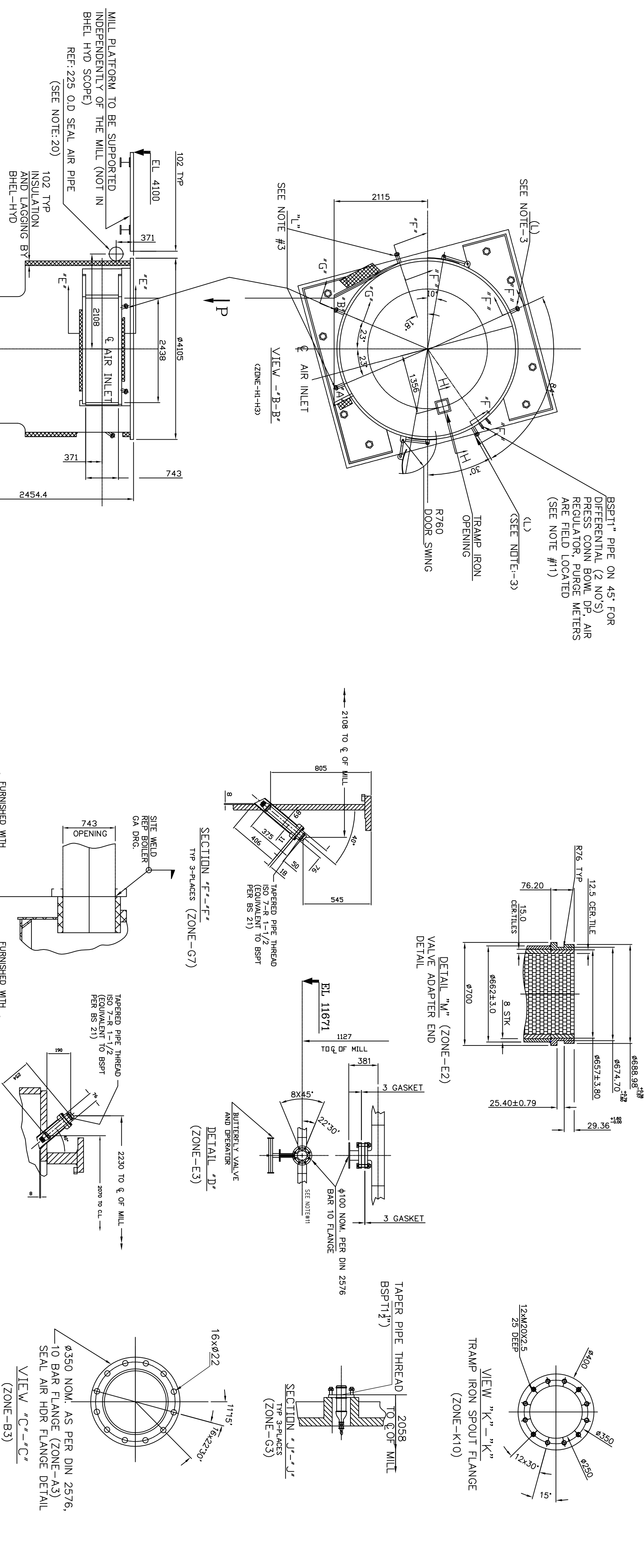
Raj

Swati

	PRE - QUALIFYING REQUIREMENTS	DOCUMENT NO: PE-TS-412-615-C002
		REVISION NO: 0 DATE: 04-03-2017
		SHEET: 1 of 1
ENQUIRY NO: E-5495/2016, dated 04/03/2017		
PROJECT: 2X660 MW ENNORE SEZ TPP UNIT 1 & 2		
PACKAGE: VIBRATION ISOLATION SYSTEM (VIS) FOR MILL FOUNDATION		
CRITERIA FOR EVALUATION (TECHNICAL / FINANCIAL): a. Vendor should have supplied and commissioned VIS for MILL foundation or similar machine foundation in power plants (minimum 200 MW rating) or equivalent large sized industrial plants and furnish experience list of at least two recently executed contracts where such systems have been successfully installed for such applications. 2 (two) nos. purchase orders shall be submitted which should not be more than 10 (ten) years old as on date of bid submission for establishing continuity in business. The vibration isolation system shall be of proven make and should be in successful operation for such foundation for at least one year. b. The vendor should have at least two year design experience in design of VIS module, selection and finalization of Layout of VIS as well as design of RCC deck slab resting on VIS and supporting the machine and be able to furnish static and dynamic analysis of the same. Calculation should establish that not more than 10% dynamic loads are transferred to the structure supporting the VIS and that the foundation system meets the amplitude and frequency requirement as required by the machine manufacturer. The isolation system and R.C.C. deck slab shall be able to withstand seismic loading in addition to other loadings i.e. dead, live, wind, dynamic etc. Seismic design shall conform to IS: 1893 (Criteria for Earthquake Resistant Design of Structures) or equivalent international standard. The vendor should furnish supporting documents for the same. c. Performance certificate (along with copy of relevant purchase order) from the end user/customer for at least two (different Customers) successfully executed contracts which are in successful operation for at least one year for the applying package shall be furnished. OR The supplier has been awarded Repeat Purchase order from same customer (placed with minimum gap of 1 (one) year after commissioning of machine supported on VIS of previous contract). Repeat purchase orders shall be furnished from two different customers. In case supplier is not OEM, offer shall be evaluated as per point 1. of Notes to PQR available at http://bhelpem.com/vensection/PMD/PMD.aspx		
PREPARED BY: <i>Pankaj Kumar</i> NAME: Pankaj Kumar DESIGNATION : Sr. Engineer DEPT.: Civil	REVIEWED BY: <i>Sushil</i> 6/3/17 NAME: Sushil Kr. Mahato DESIGNATION : Manager DEPT.: Civil	APPROVED BY: <i>Tarun Mehta</i> 06/03/17 NAME: Tarun Kr. Mehta DESIGNATION : Sr.DGM DEPT.: Civil

[illegible]

NOTES:-



OWNER :		TAMILJALU GENERATION AND DISTRIBUTION CORPORATION	
CONSULTANT :		DESIGN PRIVATE LIMITED, NEW DELHI	
PROJECT :		2 X 660 MW ENHANCED SIZE SUPERCRITICAL TPP AT ASH DIKE OF NCPES, CHENNAI - 57.	
DRAWING NO.		DRN / 004 / 000	
DATE		02.02.15	
BY		02.02.15	
CHECKED		02.02.15	
SCALE		N/A	
TITLE		DRAWING NO.	
SHEET NO.		0-00-620-860801	
SHEET NO.		00	
SHEET NO.		15	

[illegible]