

TENDER SPECIFICATIONS

Sl. No.	E- TENDER SPECIFICATION NUMBER
1	BHE/PW/PUR/MAFGD-BLR MOD SCR /2571

For

Erection, Testing & Assistance for commissioning of Boiler modifications for SCR including application of thermal Insulation, supply and application of final painting, Collection / Loading / Unloading/ Transportation of Materials from BHEL / Client's Stores / Storage Yard and transportation to site, and handing over of 4 units at 4x270 MW BTPS Manuguru FGD project.

VOLUME – I

TECHNICAL BID

THIS TENDER SPECIFICATION CONSISTS OF:

Notice Inviting Tender	
Volume-IA	Technical Conditions of Contract
Volume-IB	Special conditions of Contract
Volume-IC	General conditions of Contract
Volume-ID	Forms & Procedures
Volume-IE	TECHNICAL SPECIFICATIONS & Plot Plan
Volume II	Price Bid



Bharat Heavy Electricals Limited
(A Government of India Undertaking)
Power Sector - Western Region
345-Kingsway, Nagpur-440001

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NIL	Notice Inviting Tender	Part of Vol-I-2571
I-A	Technical Conditions of Contract	Vol-IA-2571
I-B	Special Conditions of Contract	Part of Vol-I-BCD-2571
I-C	General Conditions of Contract	Part of Vol-I-BCD-2571
I-D	Forms & Procedures	Part of Vol-I-BCD-2571
~~I-E~~	~~TECHNICAL SPECIFICATIONS & Plot Plan~~	Enclosed
II	Price Bid Specification as specified at E-Procurement Portal	VolIIPriceBid2571

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NOTICE INVITING TENDER

Bharat Heavy Electricals Limited



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NOTICE INVITING E-TENDER (NIT)

NOTE: BIDDER MAY DOWNLOAD/ UPLOAD THE TENDER/ OFFER FROM/ON BHEL E-PROCUREMENT PORTAL → <https://eprocurebhel.co.in>

To,

Dear Sir/Madam,

Sub : NOTICE INVITING E-TENDER

Sealed offer(s) in two part bid system (National competitive bidding (NCB) or International Competitive Bidding (ICB) are invited from reputed & experienced bidder(s) (meeting PRE QUALIFICATION CRITERIA as mentioned in Annexure-1) for the subject job by the undersigned on the behalf of BHARAT HEAVY ELECTRICALS LIMITED as per the tender document. Following points relevant to the tender may please be noted and complied with.

1.0 Salient Features of NIT

S No.	ISSUE	DESCRIPTION	
i	E-TENDER NUMBER	BHE/PW/PUR/MAFGD-BLR MOD SCR /2571	
ii	Broad Scope of job	Erection, Testing & Assistance for commissioning of Boiler modifications for SCR including application of thermal Insulation, supply and application of final painting, Collection / Loading / Unloading/ Transportation of Materials from BHEL / Client's Stores / Storage Yard and transportation to site, and handing over of 4 units at 4x270 MW BTPS Manuguru FGD project.	
iii	DETAILS OF TENDER DOCUMENT		
A	Volume-IA	Technical Conditions of Contract (TCC) consisting of Scope of work, Technical Specification, Drawings, Procedures, Bill of Quantities, Terms of payment, etc.	Applicable
B	Volume-IB	Special Conditions of Contract (SCC)	Applicable
C	Volume-IC	General Conditions of Contract (GCC)	Applicable
D	Volume-ID	Forms and Procedures	Applicable
E	Volume-IE	TECHNICAL SPECIFICATIONS & Plot Plan	Applicable
F	Volume-II	Price Bid as specified in E-Procurement Portal	Applicable
iv	Issue of Tender Documents	Tender documents will be available for downloading from BHEL website (www.bhel.com) or e-procurement portal (https://eprocurebhel.co.in) as per schedule below: Start: 08/04/2022, Time: 18:00 Closes: 29/04/2022, Time: 14:00 Brief information of the tenders shall also be available at central public procurement portal. (https://eprocure.gov.in/epublish/app)	Applicable
v	DUE DATE & TIME OF OFFER SUBMISSION	Date: 29/04/2022, Time: 14.00 Hrs Place: on E-Tender Portal https://eprocurebhel.co.in	Applicable

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S No.	ISSUE	DESCRIPTION	
vi	OPENING OF TENDER (Techno-Commercial Bid)	Date: 29/04/2022, Time: 17.00 Hrs Notes: (1) In case the due date of opening of tender becomes a non-working day, then the due date & time of offer submission and opening of tenders get extended to the next working day. (2) Bidder may depute representative to witness the opening of tender. For e-Tender, Bidder may witness the opening of tender through e-Procurement portal only.	<i>Applicable</i>
vii	EMD AMOUNT	EMD amount is waived off. All the relevant clauses shall be read accordingly. BID SECURITY FORMAT: In view of waiver-off of EMD amount as cited above, Bidders are requested to submit the "Bid Security Declaration Format" as per Annexure-A of this NIT.	<i>EMD Not Applicable</i>
viii	COST OF TENDER	<i>Free</i>	
ix	LAST DATE FOR SEEKING CLARIFICATION	One day before due date of offer submission. Along with soft version also, addressing to undersigned & to others as per contact address given below: 1) Name: P R Chiwarkar Designation: GM Deptt: Purchase Address: Floor no. 5 & 6, Shree Mohini Complex, 345 Kingsway, Nagpur-440001 Phone: Landline: +91-712-2858-633 Email :prchiwarkar@bhel.in; Fax:+91-712-2858600 2) Name: Kamlesh Kumar Designation: DGM Deptt: Purchase Address: Floor no. 5 & 6, Shree Mohini Complex, 345 Kingsway, Nagpur-440001 Email : kamleshbhel@bhel.in; 3) Name: Shubhangi Tembhurne Designation: Dy Manager Deptt: Purchase Address: Floor no. 5 & 6, Shree Mohini Complex, 345 Kingsway, Nagpur-440001 Phone: Land Line: +91-712-2858742 Email : shubh@bhel.in; Fax:+91-712-2858600	<i>Applicable</i>
x	SCHEDULE OF Pre Bid Discussion (PBD)	-	<i>Not Applicable</i>
xi	INTEGRITY PACT & DETAILS OF INDEPENDENT	Sh Virendra Bahadur Singh, IPS (Retd.) and Sh. Arun Chandra Verma, IPS (Retd.)	<i>Applicable</i>

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S No.	ISSUE	DESCRIPTION
	EXTERNAL MONITOR (IEM)	
xii	Latest updates	Latest updates on the important dates, Amendments, Correspondences, Corrigenda, Clarifications, Changes, Errata, Modifications, Revisions, etc to Tender Specifications will be hosted in BHEL webpage (www.bhel.com -->Tender Notifications →View Corrigendum), Central Public Procurement portal (https://eprocure.gov.in/epublish/app) & on e-tender portal https://eprocurebhel.co.in and not in the newspapers. Bidders to keep themselves updated with all such information.

- 2.0 The offer shall be submitted as per the instructions of tender document and as detailed in this NIT. Bidders to note specifically that all pages of tender document, including these NIT pages of this particular tender together with subsequent correspondences shall be submitted by them, duly signed digitally using Class III DSC & uploaded in E-Procurement Portal, as part of offer. **Rates/Price including discounts/rebates, if any, mentioned anywhere/in any form in the techno-commercial offer other than the Price Bid, shall not be entertained.**
- 3.0 Not Used
- 4.0 Unless specifically stated otherwise, bidder shall deposit EMD as per clause 1.9 of General Conditions of Contract.

For Electronic Fund Transfer the details are as below:-

NAME OF THE BENEFICIARY	BHARAT HEAVY ELECTRICALS LTD
ADDRESS OF THE COMPANY	5 th Floor, SHREE MOHINI COMPLEX 345, KINGSWAY,NAGPUR
NAME OF BANK	STATE BANK OF INDIA
NAME OF BANK BRANCH AND BRANCH CODE	SBI,NAGPUR MAIN BRANCH ,CODE-00432
CITY	NAGPUR
ACCOUNT NUMBER	40227423158
ACCOUNT TYPE	MC-C C Clean (C&I)
IFSC CODE OF THE BENEFICIARY BANK BRANCH	SBIN0000432
MICR CODE OF THE BANK BRANCH	440002002

(Note -: In case of E-Tenders, proof of remittance of EMD should be uploaded in the E-Procurement Portal and originals, as applicable, shall be sent to the officer inviting tender within a reasonable time, failing which the offer is liable to be rejected.

5.0 Procedure for Submission of Tenders:

This is an E-tender floated online through our E-Procurement Site (<https://eprocurebhel.co.in>). The bidder should respond by submitting their offer online only in our e-Procurement platform at (<https://eprocurebhel.co.in>). Offers are invited in two-parts only.

Documents Comprising the e-Tender

The tender shall be submitted online ONLY EXCEPT EMD (in physical form) as mentioned below:

a. Technical Tender (UN priced Tender)

All Technical details (e.g. Eligibility Criteria requested (as mentioned below)) should be attached in e-tendering module, failing which the tender stands invalid & may be REJECTED. Bidders shall furnish the following information along with technical tender (preferably in pdf format):

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- i. Earnest Money Deposit (EMD) furnished in accordance with NIT Clause 4.0. ~~Alternatively, documentary evidence for claiming exemption as per clause 29 of NIT.~~
 - ii. Technical Bid (without indicating any prices).

b. Price Bid:

- i. Prices are to be quoted in the attached Price Bid format online on e-tender portal.
- ii. The price should be quoted for the accounting unit indicated in the e-tender document.
- iii. Note: It is the responsibility of tenderer to go through the Tender document to ensure furnishing all required documents in addition to above, if any. Any deviation would result in REJECTION of tender and would not be considered at a later stage at any cost by BHEL.
- iv. A person signing (manually or digitally) the tender form or any documents forming part of the contract on behalf of another shall be deemed to warrantee that he has authority to bind such other persons and if, on enquiry, it appears that the persons so signing had no authority to do so, the purchaser may, without prejudice to other civil and criminal remedies, cancel the contract and hold the signatory liable for all cost and damages.
- v. A tender, which does not fulfil any of the above requirements and/or gives evasive information/reply against any such requirement, shall be liable to be ignored and rejected.

DO NOT'S

Bidders are requested NOT to submit the hard copy of the Bid. In case offer is sent through hard copy/fax/telex/cable/electronically in place of e-tender, the same shall not be considered. **Also, uploading of the price bid in prequalification bid or technical bid may RESULT IN REJECTION of the tender.**

Digital Signing of e-Tender

Tenders shall be uploaded with all relevant PDF/zip format. The relevant tender documents should be uploaded by an authorized person having Class 3- SHA2- 2048 BIT- SIGNING & ENCRYPTION digital signature certificate (DSC).

The Requirement:

- 1. A PC with Internet connectivity &
- 2. DSC (Digital Signature Certificate) (**Class 3- SHA2- 2048 BIT- SIGNING & ENCRYPTION**)

BHEL has finalized the e-procurement service Provider:-

NIC PORTAL (<https://eprocurebhel.co.in>)

For E-PROCUREMENT ASSISTANCE & TRAINING, NIC PORTAL HELPDESK CONTACTS AS PER FOLLOWING:

For any technical related queries, please call at 24 x 7 Help Desk Number

0120-4001 002

0120-4200 462

0120-4001 005

0120-6277 787

1. Peter Raj, NIC, Ph: 9942069052

Email Support: support-eproc@nic.in

Other details/update yourself from : <https://eprocurebhel.co.in>

The process of utilizing e-procurement necessitates usage of **DSC (Digital Signature Certificate)**

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(Class 3- SHA2- 2048 BIT- SIGNING & ENCRYPTION) and you are requested to procure the same immediately, if not presently available with you. Please note that only with DSC, you will be able to login the e-procurement secured site and take part in the tendering process.

The contact details of the DSC certifying authority:-
please refer <http://www.mca.gov.in/> → MCA SERVICES → DSC SERVICES

Vendors are requested to go through seller manual available on <https://eprocurebhel.co.in>.

Procedure for Submission of Tenders (To be used in case of Paper bid only): The Tenderers must submit their Tenders to Officer inviting Tender, as detailed below:

- ~~PART I consisting of 'PART I A (Techno Commercial Bid)' & 'PART I B (EMD)' in two separate sealed and superscribed envelopes (ENVELOPE I & ENVELOPE II)~~
- ~~PART II (Price Bid) in sealed and superscribed envelope (ENVELOPE III)~~
- ~~One set of tender documents shall be retained by the bidder for their reference~~

6.0 The contents for ENVELOPES and the superscription for each sealed cover/Envelope are as given below. **(All pages to be signed and stamped) (To be used in case of Paper bid only):**

Sl. no.	Description	Remarks
	Part-I A	
	~~ENVELOPE – I superscribed as: PART I (TECHNO COMMERCIAL BID) TENDER NO:- NAME OF WORK:- PROJECT:- DUE DATE OF SUBMISSION:- CONTAINING THE FOLLOWING:-~~	
i. —	~~Covering letter/Offer forwarding letter of Tenderer.~~	
ii. —	~~Duly filled in 'No Deviation Certificate' as per prescribed format to be placed after document under sl no (i) above. Note: a. — In case of any deviation, the same should be submitted separately for technical & commercial parts, indicating respective clauses of tender against which deviation is taken by bidder. The list of such deviation shall be placed after document under sl no (i) above. It shall be specifically noted that deviation recorded elsewhere shall not be entertained. b. — BHEL reserves the right to accept/reject the deviations without assigning any reasons, and BHEL decision is final and binding. i). — In case of acceptance of the deviations, appropriate loading shall be done by BHEL ii). — In case of unacceptable deviations, BHEL reserves the right to reject the tender~~	
iii. —	~~Supporting documents/ annexure/ schedules/ drawing etc. as required in line with Pre-Qualification criteria. It shall be specifically noted that all documents as per above shall be indexed properly and credential certificates issued by clients shall distinctly bear the name of organization, contact ph. no, FAX no, etc.~~	
iv. —	~~All — Amendments/Correspondences/Corrigenda/Clarifications/Changes/ Errata etc. pertinent to this NIT.~~	

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v. —	Integrity Pact Agreement (Duly signed by the authorized signatory)	If applicable
vi. —	Duly filled in annexures, formats etc. as required under this Tender Specification/NIT	
vii. —	Notice inviting Tender (NIT)	
viii. —	Volume — I A : ~~Technical~~ Conditions of Contract (TCC) consisting of Scope of work, Technical Specification, Drawings, Procedures, Bill of Quantities, Terms of payment, etc.	
ix. —	Volume — I B : Special Conditions of Contract (SCC)	
x. —	Volume — I C : General Conditions of Contract (GCC)	
xi. —	Volume — I D : Forms & Procedures	
xii. —	Volume — II (UNPRICED — without disclosing rates/price, but mentioning only 'QUOTED' or 'UNQUOTED' against each item	
xiii. —	Any other details preferred by bidder with proper indexing.	

	PART-I-B	
	<u>ENVELOPE — II superscribed as:</u> PART-I (EMD) TENDER NO:- NAME OF WORK:- PROJECT:- DUE DATE OF SUBMISSION:- <u>CONTAINING THE FOLLOWING:-</u>	
	Earnest Money Deposit (EMD) in the form as indicated in this Tender	

	PART-II	
	<u>PRICE BID</u> consisting of the following shall be enclosed	
	<u>ENVELOPE-III</u> superscribed as: PART-II (PRICE BID) TENDER NO:- NAME OF WORK:- PROJECT:- DUE DATE OF SUBMISSION:- <u>CONTAINING THE FOLLOWING</u>	
i	Covering letter/Offer forwarding letter of Tenderer enclosed in Part-I	
ii	Volume II — PRICE BID (Duly Filled in Schedule of Rates — rate/price to be entered in words as well as figures)	

	OUTER COVER	
	<u>ENVELOPE-IV</u> (MAIN ENVELOPE / OUTER ENVELOPE) superscribed as: TECHNO-COMMERCIAL BID, PRICE BID & EMD TENDER NO:- NAME OF WORK:- PROJECT:- DUE DATE OF SUBMISSION:- <u>CONTAINING THE FOLLOWING:</u>	
i	○ Envelopes I ○ Envelopes II ○ Envelopes III	

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- **SPECIAL NOTE: All documents/ annexures to be submitted should be uploaded in respective places in the E-Tender portal as per the list mentioned given in this NIT. BHEL shall not be responsible for any in-complete documents.**

- 7.0 Deviation with respect to tender clauses and additional clauses/suggestions in Techno-commercial bid / Price bid shall NOT be considered by BHEL. Bidders are requested to positively comply with the same.
- 8.0 BHEL reserves the right to accept or reject any or all Offers without assigning any reasons thereof. BHEL also reserves the right to cancel the Tender wholly or partly without assigning any reason thereof. Also BHEL shall not entertain any correspondence from bidders in this matter (except for the refund of EMD).

9.0 **Assessment of Capacity of Bidders:**

A. Bidder's capacity for executing the job under tender shall be assessed 'LOAD' wise and 'PERFORMANCE' wise as per the following:

- I. **LOAD:** Load takes into consideration **ALL** the contracts of the Bidder under execution with BHEL Regions, irrespective of whether they are similar to the tendered scope or not. The cut off month for reckoning 'Load' shall be the 3rd Month preceding the month corresponding to the 'latest date of bid submission', in the following manner -
(**Note:** For example, if latest bid submission is in Jan 2017, then the 'load' shall be calculated up to and inclusive of Oct 2016)

Total number of Packages in hand = Load (P)

Where 'P' is the sum of all unit wise identified packages (refer table-1) under execution with BHEL Regions as on the cut off month defined above, including packages yet to be commenced, excepting packages which are on Long Hold.

- II. **PERFORMANCE:** Here 'Monthly Performance' of the bidder for all the packages (under execution/ executed during the 'Period of Assessment' in all Power Sector Regions of BHEL) **SIMILAR** to the packages covered under the tendered scope, excepting packages not commenced shall be taken into consideration. The 'Period of Assessment' shall be 6 months preceding and including the cut off month. The cut off month for reckoning 'Period of Assessment' shall be the 3rd Month preceding the month corresponding to 'latest date of bid submission', in the following manner:

(**Note:** For example, if 'latest date of bid submission' is in Jan 2017, then the 'performance' shall be assessed for a 6 months' period up to and inclusive of Oct 2016 (i.e. from May 2016 to Oct 2016), for all the unit wise identified packages (refer Table I))

- i). **Calculation of Overall 'Performance Rating' for 'Similar Package/Packages' for the tendered scope under execution at Power Sector Regions for the 'Period of Assessment':**

This shall be obtained by summing up the 'Monthly Performance Evaluation' scores obtained by the bidder in all Regions for all the similar Package/packages', divided by the total number of Package months for which evaluation should have been done, as per procedure below:

- a) $P_1, P_2, P_3, P_4, P_5, \dots, P_N$ etc. be the packages (under execution/ executed during the 'Period of Assessment' in all Regions of BHEL) **SIMILAR** to the packages covered under the tendered scope, excepting packages not commenced. Total number of similar packages for all Regions = P_T (i.e. $P_T = P_1 + P_2 + P_3 + P_4 + \dots + P_N$)
- b) Number of Months ' T_1 ' for which 'Monthly Performance Evaluation' as per relevant formats, should have been done in the 'Period of Assessment' for the corresponding similar package P_1 . Similarly T_2 for package

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P_2, T_3 for package P_3 , etc. for the tendered scope. Now calculate cumulative total months ' T_T ' for total similar Packages ' P_T ' for all Regions (i.e. $T_T = T_1 + T_2 + T_3 + T_4 + \dots T_N$)

c) Sum ' S_1 ' of 'Monthly Performance Evaluation' Scores ($S_{1-1}, S_{1-2}, S_{1-3}, S_{1-4}, S_{1-5} \dots S_{1-T1}$) for similar package P_1 , for the 'period of assessment' ' T_1 ' (i.e. $S_1 = S_{1-1} + S_{1-2} + S_{1-3} + S_{1-4} + S_{1-5} + \dots S_{1-T1}$). Similarly, S_2 for package P_2 for period T_2 , S_3 for package P_3 for period T_3 etc. for the tendered scope for all Regions. Now calculate cumulative sum ' S_T ' of 'Monthly Performance Evaluation' Scores for total similar Packages ' P_T ' for all Regions (i.e. ' $S_T = S_1 + S_2 + S_3 + S_4 + S_5 + \dots S_N$ ')

d) **Overall Performance Rating ' R_{BHEL} ' for the Similar Package/Packages** (under execution/ executed during the 'Period of Assessment') in all the Power Sector Regions of BHEL

$$= \frac{\text{Aggregate of Performance scores for all similar packages in all the Regions}}{\text{Aggregate of months for each of the similar packages for which performance should have been evaluated in all the Regions}}$$

$$= \frac{S_T}{T_T}$$

e) Bidders to note that the risk of non-evaluation or non-availability of the 'Monthly Performance Evaluation' reports as per relevant formats is to be borne by the Bidder.

f) Table showing methodology for calculating 'a', 'b' and 'c' above

Sl. No.	Item Description	Details for all Regions							Total
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
1	Similar Packages for all Regions → (under execution/ executed during period of assessment)	P_1	P_2	P_3	P_4	P_5	...	P_N	Total No. of similar packages for all Regions = P_T i.e. Sum (Σ) of columns (iii) to (ix)
2	Number of Months for which 'Monthly Performance Evaluation' as per relevant formats should have been done in the 'period of assessment' for corresponding Similar Packages (as in row 1)	T_1	T_2	T_3	T_4	T_5	...	T_N	Sum (Σ) of columns (iii) to (ix) $= T_T$

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Sl. No.	Item Description	Details for all Regions							Total
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
3	Monthly performance scores for the corresponding period (as in Row 2)	S ₁₋₁ , S ₁₋₂ , S ₁₋₃ , S ₁₋₄ , ... S _{1-T1}	S ₂₋₁ , S ₂₋₂ , S ₂₋₃ , S ₂₋₄ , ... S _{2-T2}	S ₃₋₁ , S ₃₋₂ , S ₃₋₃ , S ₃₋₄ , ... S _{3-T3}	S ₄₋₁ , S ₄₋₂ , S ₄₋₃ , S ₄₋₄ , ... S _{4-T4}	S ₅₋₁ , S ₅₋₂ , S ₅₋₃ , S ₅₋₄ , ... S _{5-T5}		S _{N-1} , S _{N-2} , S _{N-3} , S _{N-4} , ... S _{N-TN}	-----
4	Sum of Monthly Performance scores of the corresponding Package for the corresponding period (as in row-3)	S ₁	S ₂	S ₃	S ₄	S ₅	...	S _N	Sum (Σ) of columns (iii) to (ix) = S_T

- ii). Calculation of Overall 'Performance Rating' (R_{BHEL}) in case at least 6 evaluation scores for 'similar Package/Packages' for the tendered scope ARE NOT AVAILABLE, during the 'Period of Assessment':

This shall be obtained by summing up the 'Monthly Performance Evaluation' scores obtained by the bidder in all Regions for ALL the packages, divided by the total number of Package months for which evaluation should have been done. ' R_{BHEL} ' shall be calculated subject to availability of 'performance scores' for at least 6 'package months' in the order of precedence below:

- 'Period of Assessment' i.e. 6 months preceding and including the cut-off month
- 12 months preceding and including the cut-off month
- 24 months preceding and including the cut-off month

In case, R_{BHEL} cannot be calculated as above, then Bidder shall be treated as 'NEW VENDOR'. Further eligibility and qualification of this bidder shall be as per definition of 'NEW VENDOR' described in 'Explanatory Notes'.

- iii). Factor "L" assigned based on Overall Performance Rating (R_{BHEL}) at Power Sector Regions:

Sl. no.	Overall Performance Rating (R_{BHEL})	Corresponding value of 'L'
1	=60	NA
2	> 60 and $\leq$ 65	0.4
3	> 65 and $\leq$ 70	0.35
4	> 70 and $\leq$ 75	0.25
5	> 75 and < 80	0.2
6	$\geq$ 80	NA

- iv). Performance Systems: The performance rating as mentioned in II (i) and (ii) above, shall be calculated as per Online Systems i.e. Contractor Performance Evaluation System (CPES) and Safety Performance Evaluation System (HSEPES). The scores assigned in HSEPES shall be scaled down to 10 and assigned in CPES against the category "HSE" (mentioned in Form F-15).

III. 'Assessment of Capacity of Bidder':

'Assessment of Capacity of Bidder' is based on the Maximum number of packages for which a vendor is eligible, considering the performance scores of similar packages, as below:

Max number of packages $P_{Max} = (R_{BHEL} - 60)$ divided by corresponding value of 'L', i.e. $(R_{BHEL} - 60)/L$

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Note:

- i). In case the value of P_{Max} results in a fraction, the value of P_{Max} is to be rounded off to next whole number
- ii). For $R_{BHEL} = 60$, $P_{Max} = '1'$
- iii). For $R_{BHEL} \geq 80$, there will be no upper limit on P_{Max}

The Bidder shall be considered 'Qualified' as per 'Assessment of Capacity of Bidder' for the subject Tender if $P \leq P_{Max}$

(Where P is calculated as per clause 'I' above)

In addition to above, in case contractor fails to score more than 5 (five) marks in the scaled down scores of HSEPEs for "more than 2 months in a period of 6 months preceding and including the cut-off month in any single package", the contractor shall be considered disqualified for ongoing tender(s) of BHEL. Qualification of bidder for further tendering process shall be subject to qualifying this condition in addition to qualifying requirements mentioned in PQR. Bidders who did not qualify this condition shall not be considered under the provisions of clause 9 IV (iv) of NIT.

IV. Explanatory note:

- i). Similar package means Boiler or ESP or Piping or Turbine or Civil or Structure or Electrical or C&I etc. at the individual level irrespective of rating of Plant and irrespective of whether the subject tender is a single package or as part of combined/composite packages. Normally Boiler, ESP, Piping, Turbine, Electrical, C&I, Civil, Structure etc. is considered individual level of package. For example, in case the tendered scope is a Boiler Vertical Package comprising of Boiler, ESP and Power Cycle Piping (i.e. the 'identified packages as per Table-1 below), the 'PERFORMANCE' part against sl.no. II above, needs to be evaluated considering all the identified packages (i.e. Boiler, ESP and Power Cycle Piping) and finally the Bidder's capacity to execute the tendered scope is assessed in line with III above.

- ii). Identified Packages (Unit wise)

Table-1

Civil	Electrical and C&I	Mechanical
i). Enabling works ii). Pile and Pile Caps iii). Civil Works including foundations iv). Structural Steel Fabrication & Erection v). Chimney vi). Cooling Tower vii). Others (Civil)	i). Electrical ii). C&I iii). Others (Elect. and C&I)	i). Boiler & Aux (All types including CW Piping if applicable) ii). Power Cycle Piping/Critical Piping iii). ESP iv). LP Piping v). Steam Turbine Generator set & Aux vi). Gas Turbine Generator set & Aux vii). Hydro Turbine Generator set & Aux viii). Turbo Blower (including Steam Turbine) ix). Material Management x). FGD xi). ACC xii). Others (Mechanical)

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- iii). Bidders who have not been evaluated for at least six package months in the last 24 months preceding and including the Cut-off month in the online BHEL system for contractor performance evaluation in BHEL PS Regions, shall be considered "NEW VENDOR".

A 'NEW VENDOR' shall be considered qualified subject to satisfying all other tender conditions.

A 'NEW VENDOR' if awarded a job (of package/packages identified under this clause) shall be tagged as "FIRST TIMER" on the date of first LOI from BHEL.

The "FIRST TIMER" tag shall remain till completion of all the contracts against which vendor has been tagged as First Timer or availability of 6 evaluation scores within last 24 months preceding and including the Cut-off month in the online BHEL system for contractor performance evaluation in BHEL PS Regions.

A Bidder shall not be eligible for the next job as long as the Bidder is tagged as "FIRST TIMER" excepting for the Tenders which have been opened on or before the date of the bidder being tagged as 'FIRST TIMER'.

After removal of 'FIRST TIMER' tag, the Bidder shall be considered 'QUALIFIED' for the future tenders subject to satisfying all other tender conditions including 'Assessment of Capacity of Bidders'.

- iv). Consequent upon applying the criteria of 'Assessment of Capacity of Bidders' detailed above on all the bidders qualified against Technical and Financial Qualification criteria, if the number of qualified bidders reduces to less than minimum no. of bidders required for conducting RA as per extant RA Guidelines, then for further processing of the Tender, BHEL at its discretion reserves the right to also consider the bidders who are "not qualified" as per criteria of 'Assessment of Capacity of Bidders' and for this, procedure described in following three options shall be followed:
- a) All the bidders having Overall Performance Rating (R_{BHEL}) ≥ 60 shall be considered qualified against criteria of 'Assessment of Capacity of Bidders'.
 - b) If even after using option "a", the number of qualified bidders remains less than minimum no. of bidders required for conducting RA as per extant RA Guidelines, then in addition to bidders considered as per option "a", "First timer" bidders having average of available performance scores ≥ 60 upto and including the Cut Off month shall also be considered qualified against criteria of 'Assessment of Capacity of Bidders'.
 - c) If even after using option "a" and "b", the number of qualified bidders remains less than minimum no. of bidders required for conducting RA as per extant RA Guidelines, then in addition to bidders considered as per option "a" and "b", "First timer" bidders for whom no performance score is available in the system upto and including the Cut Off month, shall also be considered qualified against criteria of 'Assessment of Capacity of Bidders'.

Note:- In case, the number of bidders qualified against Technical and Financial Qualification criteria itself is less than minimum no. of bidders required for conducting RA as per extant RA Guidelines, then all bidders (a)- having Overall Performance Rating (R_{BHEL}) ≥ 60 , (b)- "First timer" bidders having average of available performance scores ≥ 60 upto and including the Cut Off month, (c)- "First timer" bidders for whom no performance score is available in the system upto and including the Cut Off month, shall be considered qualified against criteria of 'Assessment of Capacity of Bidders' for further processing of tender.

- v). 'Under execution' shall mean works in progress as per the following:
- a. Up to execution of 90% of anticipated Contract Value in case of Civil, MM, Structural and Turbo Blower Packages
 - b. Up to Steam Blowing in case of Boiler/ESP/Piping Packages
 - c. Up to Synchronization in all Balance Packages

Note: BHEL at its discretion can extend (or reduce in exceptional cases in line with Contract conditions) the period defined against (a), (b) and (c) above, depending upon the balance scope of work to be completed.

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- vi). Contractor shall provide the latest contact details i.e. mail-ID and Correspondence Address to SCT Department, so that same can be entered in the Contractor Performance Evaluation System, and in case of any change/discrepancy same shall be informed immediately. Login Details for viewing scores in Contractor Performance Evaluation System shall be provided to the Contractor by SCT Department.
- vii). Performance Evaluation for Activity Month shall be completed in Evaluation Month (i.e. month next to Activity Month) or in rare cases in Post Evaluation Month (i.e. month next to Evaluation Month) after approval from Competent Authority. In case scores are not acceptable, Contractor can submit Review Request to GM Site/ GM Project latest by 27th of Evaluation Month or 5 days after approval of score, whichever is later. However, acceptance/rejection of 'Review Request' solely depends on the discretion of GM Site/GM Project. After acceptance of Review Request, evaluation score shall be reviewed at site and the score after completion of review process shall be acceptable and binding on the contractor.
- viii). Project on Hold due to reasons not attributable to bidder -
- a. **Short hold:** Evaluation shall not be applicable for this period, however Loading will be considered.
 - b. **Long hold:** Short hold for continuous six months and beyond or hold on account of Force Majeure shall be considered as Long Hold. Evaluation as well as Loading shall not be considered for this period.
- ix). Performance evaluation as specified above in this clause is applicable to Prime bidder and Consortium partner (or Technical tie up partner) for their respective scope of work.
- 10.0 Since the job shall be executed at site, bidders must visit site/ work area and study the job content, facilities available, availability of materials, prevailing site conditions including law & order situation, applicable wage structure, wage rules, etc. before quoting for this tender. They may also consult this office before submitting their offers, for any clarifications regarding scope of work, facilities available at sites or on terms and conditions.
- 11.0 For any clarification on the tender document, the bidder may seek the same in writing or through e-mail and/or through e-procurement portal, as per specified format, within the scheduled date for seeking clarification, from the office of the undersigned. BHEL shall not be responsible for receipt of queries after due date of seeking clarification due to postal delay or any other delays. Any clarification / query received after last date for seeking clarification may not be normally entertained by BHEL and no time extension will be given.
- 12.0 BHEL may decide holding of pre-bid discussion [PBD] with all intending bidders as per date indicated in the NIT. The bidder shall ensure participation for the same at the appointed time, date and place as may be decided by BHEL. Bidders shall plan their visit accordingly. The outcome of pre-bid discussion (PBD) shall also form part of tender.
- 13.0 In the event of any conflict between requirement of any clause of this specification/ documents/drawings/data sheets etc. or requirements of different codes/standards specified, the same to be brought to the knowledge of BHEL in writing for clarification before due date of seeking clarification (whichever is applicable), otherwise, interpretation by BHEL shall prevail. Any typing error/missing pages/ other clerical errors in the tender documents, noticed must be pointed out before pre-bid meeting/submission of offer, else BHEL's interpretation shall prevail.
- 14.0 Unless specifically mentioned otherwise, bidder's quoted price shall deemed to be in compliance with tender including PBD.
- 15.0 Bidders shall submit Integrity Pact Agreement (Duly signed by authorized signatory who signs in the offer), **if applicable**, along with techno-commercial bid. This pact shall be considered as a preliminary qualification for further participation. **The names and other details of Independent External Monitor (IEM) for the subject tender is as given at point (1) above.**

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“Integrity Pact (IP)”

- (a) IP is a tool to ensure that activities and transactions between the Company and its Bidders/ Contractors are handled in a fair, transparent and corruption free manner. Following Independent External Monitors (IEMs) on the present panel have been appointed by BHEL with the approval of CVC to oversee implementation of IP in BHEL.

Sl. No.	IEM	Email
1.	Shri Arun Chandra Verma, IPS (Retd.)	acverma1@gmail.com
2.	Shri Virendra Bahadur Singh, IPS (Retd.)	vbsinghips@gmail.com

- (b) The IP as enclosed with the tender is to be submitted (duly signed by authorized signatory) along with techno-commercial bid (Part-I, in case of two/ three part bid). Only those bidders who have entered into such an IP with BHEL would be competent to participate in the bidding. In other words, entering into this Pact would be a preliminary qualification.
- (c) Please refer Section-8 of IP for Role and Responsibilities of IEMs. In case of any complaint arising out of the tendering process, the matter may be referred to any of the above IEM(s). All correspondence with the IEMs shall be done through email only.

Note:

No routine correspondence shall be addressed to the IEM (phone/ post/ email) regarding the clarifications, time extensions or any other administrative queries, etc. on the tender issued. All such clarification/ issues shall be addressed directly to the tender issuing (procurement) department's officials whose contact details are provided below:

Details of contact person(s):

Name: (1) P R Chiwarkar/ AGM (Purchase) 2) Shubhangi Tembhurne / Dy Manager (Purchase)
Dept.: Purchase Department
Address: Floor No. 5 & 6, Shreemohini Complex, 345 Kingsway, Nagpur-440001
Phone: (LL/ Mobile) (1) 0712-2858633 0712-2858742
Email: prchiwarkar@bhel.in shubh@bhel.in
Fax: 0712-2858699

- 16.0 The Bidder has to satisfy the Pre-Qualifying Requirements stipulated for this Tender in order to be qualified. The Price Bids of only those bidders will be opened who will be qualified for the subject job on the basis of satisfying the Pre-Qualification Criteria specified in this NIT as per Annexure-I (as applicable), past performance etc. and date of opening of price bids shall be intimated to only such bidders. BHEL reserves the right not to consider offers of parties under HOLD.
- 17.0 In case BHEL decides on a 'Public Opening', the date & time of opening of the sealed PRICE BID shall be intimated to the qualified bidders and in such a case, bidder may depute one authorized representative to witness the price bid opening. BHEL reserves the right to open 'in-camera' the 'PRICE BID' of any or all Unsuccessful/Disqualified bidders under intimation to the respective bidders.
- 18.0 Validity of the offer shall be for **six months** from the latest due date of offer submission (including extension, if any) unless specified otherwise.

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19.0 **Reverse Auction:** Applicable. “BHEL shall be resorting to Reverse Auction (RA) (Guidelines as available on www.bhel.com on “**supplier registration page**”.) for this tender. RA shall be conducted among the techno-commercially qualified bidders.

Price Bids of all the techno-commercially qualified bidders shall be opened and same shall be considered as initial bids of bidders in RA. In case any bidder(s) do(es) not participate in online Reverse Auction, their sealed envelope price bid along with applicable loading, if any, shall be considered for ranking.

20.0 On submission of offer, further consideration will be subject to compliance to tender & qualifying requirement and customer’s acceptance, as applicable.

21.0 In case the bidder is an “Indian Agent of Foreign Principals”, ‘Agency agreement has to be submitted along with Bid, detailing the role of the agent along with the terms of payment for agency commission in INR, along with supporting documents.

22.0 The bidders shall not enter into any undisclosed M.O.U. or any understanding amongst themselves with respect to tender.

23.0 Consortium Bidding (or Technical Tie up) shall be allowed only if specified in Pre-Qualifying Requirement (PQR) criteria, and in such a case the following shall be complied with:

23.1 Prime Bidder and Consortium Partner or partners are required to enter into a consortium agreement for the said contract with a validity period of six months initially. In case bidder becomes L1, Consortium Agreement valid till contractual completion period shall be submitted to BHEL before signing the contract. Consortium Agreement shall be kept valid till scope of work awarded to consortium partner(s) as per contract is completed.

23.2 ‘Standalone’ bidder cannot become a ‘**Prime Bidder**’ or a ‘**Consortium bidder**’ or ‘**Technical Tie up bidder**’ in a consortium (or Technical Tie up) bidding. Prime bidder shall neither be a consortium partner to other prime bidder nor take any other consortium partners. However, consortium partner may enter into consortium agreement with other prime bidders. In case of non-compliance, consortium bids of such Prime bidders will be rejected.

23.3 Number of partners for a Consortium Bidding (or Technical Tie up) including Prime Bidder shall be NOT more than 3 (three).

23.4 Prime Bidder shall be as specified in the Pre-Qualification Requirement, else the bidder who has the major share of work.

23.5 In order to be qualified for the tender, Prime Bidder and Consortium partner or partners shall satisfy (i) the Technical ‘Pre Qualifying Requirements’ specified for the respective package, (ii) “Assessment of Capacity of Bidder” as specified in clause 9.0.

23.6 Prime Bidder shall comply with additional ‘Technical’ criteria of PQR as defined in ‘Explanatory Notes for the PQR’.

23.7 Prime Bidder shall comply with all other Pre Qualifying criteria for the Tender unless otherwise specified

23.8 In case customer approval is required, then Prime Bidder and Consortium Partner or partners shall have to be individually approved by Customer for being considered for the tender.

23.9 Prime Bidder shall be responsible for the overall execution of the contract.

23.10 In case of award of job, Performance shall be evaluated for Prime Bidder and Consortium Partner or partners for their respective scope of work(s) as per prescribed formats.

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23.11 In case the Consortium partner or partners back out, their SDs shall be encashed by BHEL and BHEL shall take necessary action as per extant guidelines. In such a case, other consortium partner or partners meeting the PQR have to be engaged by the Prime Bidder, and if not, the respective work will be withdrawn and executed on risk and cost basis of the Prime Bidder. The new consortium partner or partners shall submit fresh SDs as applicable.

23.12 In case Prime Bidder withdraws or insolvency / liquidation / winding up proceedings have been initiated / admitted against the Prime Bidder, BHEL reserves the right to cancel, terminate or short close the contract or take any other action to safeguard BHEL's interest in the Project / Contract. This action will be without prejudice to any other action that BHEL can take under Law and the Contract to safeguard interests of BHEL.

23.13 After execution of work, the work experience shall be assigned to the Prime Bidder and the consortium partner or partners for their respective scope of work. After successful execution of one work with a consortium partner under direct order of BHEL, the Prime Bidder shall be eligible for becoming a 'standalone' bidder for works similar to that for which consortium partner was engaged, for subsequent tenders.

23.14 The consortium partner shall submit SD equivalent to 1% of the total contract value in addition to the SD to be submitted by the Prime Bidder for the total contract value. In case there are two consortium partners, then each partner shall submit SD equivalent to 0.5% of the total contract value in addition to the SD to be submitted by the Prime Bidder for the total contract value. However, Prime Bidder has also option for submission of SD on behalf of consortium partner (s).

SD submitted by Consortium Partner(s) may be released in case corresponding scope of work of the respective Consortium partner(s) has been completed upto the extent of 80% based on certification by Construction Manager and concurrence by the prime bidder.

23.15 In case of a Technical Tie up, all the clauses applicable for the Consortium partner shall be applicable for the Technical Tie up partner also.

24.0 The bidder shall submit/upload documents in support of possession of 'Qualifying Requirements' duly self-certified and stamped by the authorized signatory, indexed and properly linked in the format for PQR. In case BHEL requires any other documents/proofs, these shall be submitted immediately.

25.0 The bidder may have to produce original document for verification if so decided by BHEL.

26.0 The consultant / firm (and any of its affiliates) shall not be eligible to participate in tender(s) for the related works or services for the same project, if they were engaged for the consultancy services.

27.0 Guidelines/rules in respect of Suspension of Business dealings, Vendor evaluation format, Quality, Safety & HSE guidelines, Experience Certificate, etc. may undergo change from time to time and the latest one shall be followed. The abridged version of extant 'Guidelines for suspension of business dealings with suppliers/ contractors' is available on www.bhel.com on "**supplier registration page**".

28.0 The offers of the bidders who are on the banned/ hold list and also the offer of the bidders, who engage the services of the banned/ hold firms, shall be rejected. The list of **banned/ hold firms** is available on BHEL web site www.bhel.com.

28.1 Integrity commitment, performance of the contract and punitive action thereof:

28.1.1 Commitment by BHEL:

BHEL commits to take all measures necessary to prevent corruption in connection with the tender Process and execution of the contract. BHEL will during the tender process treat all Bidder(s) in a transparent and fair manner, and with equity.

28.1.2 Commitment by Bidder/ Supplier/ Contractor:

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- (i) The bidder/ supplier/ contractor commit to take all measures to prevent corruption and will not directly or indirectly influence any decision or benefit which he is not legally entitled to nor will act or omit in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860 or any other law in force in India.
- (ii) The bidder/ supplier/ contractor will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract and shall adhere to relevant guidelines issued from time to time by Govt. of India/ BHEL.
- (iii) The bidder/ supplier/ contractor will perform/ execute the contract as per the contract terms & conditions and will not default without any reasonable cause, which causes loss of business/ money/ reputation, to BHEL.

If any bidder/ supplier/ contractor during pre-tendering/ tendering/ post tendering/ award/ execution/ post-execution stage indulges in mal-practices, cheating, bribery, fraud or and other misconduct or formation of cartel so as to influence the bidding process or influence the prices or acts or omits in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860 or any other law in force in India, then, action may be taken against such bidder/ supplier/ contractor as per extent guidelines of the company available on www.bhel.com and / or under applicable legal provisions.

29.0 ~~Micro and Small Enterprises (MSE)~~

~~Any Bidder falling under MSE category, shall furnish the following details & submit documentary evidence/ Govt. Certificate etc. in support of the same along with their techno-commercial offer.~~

Type under MSE	SC/ST owned	Women owned	Others (excluding SC/ ST & Women
— Micro			
— Small			

~~**Note:** - If the bidder does not furnish the above, offer shall be processed construing that the bidder is not falling under MSE category.~~

~~a) MSE suppliers can avail the intended benefits in respect of the procurements related to the Goods and Services only (Definition of Goods and Services as enumerated by Govt. of India vide Office Memorandum F.No. 21(8)/2011-MA dtd. 09/11/2016 office of AS & DC, MSME) only if they submit along with the offer, attested copies of either Udyam Registration Certificate or EM-II certificate having deemed validity (five years from the date of issue of acknowledgement in EM-II) or valid NSIC certificate or Udyog Aadhar Memorandum (UAM) & Acknowledgement or EM-II Certificate along with attested copy of a CA certificate (**format enclosed as Annexure – 3**) where deemed validity of EM-II certificate of five years has expired applicable for the relevant financial year (latest audited). Date to be reckoned for determining the deemed validity will be the last date of Technical Bid submission. Non submission of such documents will lead to consideration of their bids at par with other bidders. No benefits shall be applicable for this enquiry if the above required documents are not submitted before price bid opening. If the tender is to be submitted through e-procurement portal, then the above required documents are to be uploaded on the portal. Documents should be notarized or attested by a Gazetted officer. Documents submitted by the bidder may be verified by BHEL for rendering the applicable benefits.~~

30.0 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.

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31.0 PREFERENCE TO MAKE IN INDIA:

For this procurement, the local content to categorize a supplier as a Class I local supplier/ Class II local Supplier/Non-Local Supplier and purchase preferences to Class I local supplier, is as defined in Public Procurement (Preference to Make in India), Order 2017 dated 04.06.2020 issued by DPIIT. In case of subsequent orders issued by the nodal ministry, changing the definition of local content for the items of the NIT, the same shall be applicable even if issued after issue of this NIT, but before opening of Part-II bids against this NIT.

31.1 Compliance to Restrictions under Rule 144 (xi) of GFR 2017

- I. Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority. The Competent Authority for the purpose of this Clause shall be the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade (DPIIT).
- II. "Bidder" (including the term 'tenderer', 'consultant' or 'service provider' in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency branch or office controlled by such person, participating in a procurement process.
- III. "Bidder from a country which shares a land border with India" for the purpose of this Clause means: -
 - a. An entity incorporated established or registered in such a country; or
 - b. A subsidiary of an entity incorporated established or registered in such a country; or
 - c. An entity substantially controlled through entities incorporated, established or registered in such a country; or
 - d. An entity whose beneficial owner is situated in such a country; or
 - e. An Indian (or other) agent of such an entity; or
 - f. A natural person who is a citizen of such a country; or
 - g. A consortium or joint venture where any member of the consortium or joint venture falls under any of the above
- IV. The beneficial owner for the purpose of (III) above will be as under:
 1. In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together or through one or more juridical person, has a controlling ownership interest or who exercises control through other means.

Explanation

 - a. "Controlling ownership interest" means ownership of or entitlement to more than twenty-five per cent of shares or capital or profits of the company.
 - b. "Control" shall include the right to appoint majority of the directors or to control the management or policy decisions including by virtue of their shareholding or management rights or shareholders agreements or voting agreements.
 2. In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has

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ownership of entitlement to more than fifteen percent of capital or profits of the partnership.

- 3. In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person has ownership of or entitlement to more than fifteen percent of the property or capital or profits of the such association or body of individuals.*
- 4. Where no natural person is identified under (1) or (2) or (3) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;*
- 5. In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.*

V. An Agent is a person employed to do any act for another, or to represent another in dealings with third person.

VI. The successful bidder shall not be allowed to sub-contract works to any contractor from a country which shares a land border with India unless such contractor is registered with the Competent Authority.

Note:

- (i) The bidder shall provide undertaking for their compliance to this Clause, in the Format provided in Annexure-11.*
- (ii) Registration of the bidder with Competent Authority should be valid at the time of submission as well as acceptance of the bids.*

32.0 Bid should be free from correction, overwriting, using corrective fluid, etc. Any interlineation, cutting, erasure or overwriting shall be valid only if they are attested under full signature(s) of person(s) signing the bid else bid shall be liable for rejection.
All overwriting/cutting, etc., will be numbered by bid opening officials and announced during bid opening.

33.0 In the course of evaluation, if more than one bidder happens to occupy L-1 status, effective L-1 will be decided by soliciting discounts from the respective L-1 bidders.

In case more than one bidder happens to occupy the L-1 status even after soliciting discounts, the L-1 bidder shall be decided by a toss/ draw of lots, in the presence of the respective L-1 bidder(s) or their representative(s).

Ranking will be done accordingly. BHEL's decision in such situations shall be final and binding.

34.0 The Bidder declares that they will not enter into any illegal or undisclosed agreement or understanding, whether formal or informal with other Bidder(s). This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

In case, the Bidder is found having indulged in above activities, suitable action shall be taken by BHEL as per extant policies/ guidelines.

35.0 Order of Precedence:

In the event of any ambiguity or conflict between the Tender Documents, the order of precedence shall be in the order below:

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- a. Amendments/Clarifications/Corrigenda/Errata etc. issued in respect of the tender documents by BHEL
 - b. Notice Inviting Tender (NIT)
 - c. Price Bid
 - d. Technical Conditions of Contract (TCC)—Volume-1A
 - e. Special Conditions of Contract (SCC) —Volume-1B
 - f. General Conditions of Contract (GCC) —Volume-1C
 - g. Forms and Procedures —Volume-1D

It may please be noted that guidelines/ circulars/ amendments/ govt. directives issued from time to time shall also be applicable.

For BHARAT HEAVY ELECTRICALS LTD
(General Manager - Purchase)

Enclosure:

- 01. Annexure-1: Pre Qualifying Requirements.
- 02. Annexure-2: Check List.
- ~~03. Annexure-3: Certificate by Chartered Accountant~~
- 04. Annexure-4: Reverse Auction Process Compliance Form
- 05. Annexure-5: Authorization of representative who will participate in the online Reverse Auction Process
- 06. Annexure-6: RA Price Confirmation and Breakup
- 07. Annexure-7: Integrity Pact
- 08. Annexure-8: Undertaking for insolvency
- 09. Annexure-9: Declaration reg. Related Firms & their areas of Activities
- 010. Other Tender documents as per this NIT.
- 011. Annexure-10: DECLARATION REGARDING MINIMUM LOCAL CONTENT IN LINE WITH REVISED PUBLIC PROCUREMENT (PREFERENCE TO MAKE IN INDIA), ORDER 2017 DATED 04TH JUNE, 2020 AND SUBSEQUENT ORDER(S)
- 012. Annexure 11: DECLARATION REGARDING COMPLIANCE TO RESTRICTIONS UNDER RULE 144 (xi) OF GFR 2017
- 013. Annexure 12: Important information.

Annexure-A: Bid Security Declaration Format

Bid Security Declaration Form

(To be typed and submitted in the Letter Head of the Company/Firm of Bidder)

To,
(Write Name & Address of Officer of BHEL inviting the Tender)

Dear Sir/Madam,

Sub: Bid Security Declaration

Ref: NIT/Tender Specification No: BHE/PW/PUR/MAFGD-BLR MOD SCR /2571

SCOPE OF WORK: E & C of boiler modification for SCR for Manugur FGD Project (4X270 MW) TSGENCO Bhadradari TPS.

1. I/We Mr/ Ms..... authorized person to sign the bid documents for tender pertaining to the captioned scope do hereby declare that I/We have gone through the entire tender documents including terms and condition mentioned in the tender documents and undertake to comply with them.
2. I/We further declare that we will not withdraw our bid or modify our offer during the period of validity of the bid after the deadline for submission of such documents.
3. If I/we withdraw or modify the bids during the period of validity, or if I/We are awarded the contract and fail to sign the contract, if applicable or to submit security deposit as defined in the tender document/LOA, we will be suspended for the period of time as specified in the tender document from being eligible to submit bids/proposals to BHEL.

Signature of the Authorised Signatory
(With Name, Designation and Company seal)

Place:

Date:

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ANNEXURE - 1

PRE QUALIFYING CRITERIA

JOB	E & C of boiler modification for SCR for Manugur FGD Project (4X270 MW) TSGENCO Bhadradari TPS.		
TENDER NO	BHE/PW/PUR/MAFGD-BLR MOD SCR /2571		
SL NO	PRE QUALIFICATION CRITERIA	Bidders claim in respect of fulfilling the PQR Criteria	
		Applicability	
A	Submission of Integrity Pact duly signed (if applicable) (Note: To be submitted by Prime Bidder & Consortium /Technical Tie-up partner jointly in case Consortium bidding is permitted, otherwise by the sole bidder)	APPLICABLE	
B	Technical Criteria B.1) Not Applicable B.2) Bidder must have, achieved/Executed any one of the following (i.e. B.2.1 OR B.2.2 OR B.2.3 OR B.2.4) in the last seven years as on the latest date of offer Submission: B.2.1: Bidder must have Executed Erection & Commissioning of Atleast One Boiler (Consisting of Structures and Pressure Parts of the same Unit as a Standalone bidder) of a Unit ≥190 MW or higher rating. Or B.2.2: Bidder must have executed Erection of <u>Non Pressure Parts/Pressure Part/Power Cycle piping/Structure/ESP/Insulation /Any combination of Non Pressure Parts/Pressure Part/Power Cycle piping/Structure/ESP/ Insulation</u> of 1825 MT or higher tonnage against Single work order. Or B.2.3: Bidder must have executed Erection of <u>Non Pressure Parts/Pressure Part/Power Cycle piping/Structure/ESP/Insulation/ Any combination of these Non Pressure Parts/Pressure Part/Power Cycle piping/Structure/ESP/ Insulation</u> of each of 1369 MT or higher tonnage against maximum Two work orders.	APPLICABLE	

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	Or		
	B.2.4: Bidder must have executed Erection of <u>Non Pressure Parts/Pressure Part/Power Cycle piping/Structure/ESP/Insulation/Any combination of Non Pressure Parts/Pressure Part/Power Cycle piping/Structure/ESP/ Insulation</u> of each of 913 MT MT or higher tonnage against maximum Three work order.		
C.1	FINANCIAL TURNOVER: Bidders must have achieved an average annual financial turnover (audited) of Rs.1,14,00,000/- (Rupees One Crore Fourteen Lakhs Only) or more over last three Financial Years (FY) i.e. '2018-19, 2019-20 and 2020-21'	APPLICABLE	
C.2	NETWORTH (only in case of Companies) Net worth of the Bidder based on the latest Audited Accounts as furnished for 'C-1' above should be positive.	APPLICABLE	
C.3	PROFIT Bidder must have earned profit in any one of the three Financial Years as applicable in the last three Financial Years as furnished for 'C-1' above.	APPLICABLE	
C-4	Bidder must not be under Bankruptcy Code Proceedings (IBC) by NCLT or under Liquidation / BIFR, which will render him ineligible for participation in this tender, and shall submit undertaking (Annexure-8) to this effect.	APPLICABLE	
D	Assessment of Capacity of Bidder: The "Assessment of Capacity of Bidders" for this Tender shall be carried out by considering the identified similar packages as "Boiler & Aux, Others (Mechanical)"	APPLICABLE	
E	Approval of Customer (if applicable) Note: Names of bidders (including consortium/Technical Tie up partners in case consortium bidding is permitted) who stand qualified after compliance of criteria A to D shall be forwarded to customer for their approval	APPLICABLE	
F	Price Bid Opening Note: Price Bids of only those bidders shall be opened who stand qualified after compliance of criteria A to E		BY BHEL
G	Consortium tie-ups	NOT APPLICABLE	
	<u>Explanatory Notes for the PQR (unless otherwise specified in the PQR):</u> <u>Explanatory Notes for PQR B.1 (Technical)</u> For the criteria (B.1), actual executed value shall be considered.		

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- Value of work is to be updated with indices for "All India Avg. Consumer Price index for industrial workers" and "Monthly Whole Sale Price Index for All Commodities" with base month as per last month of work execution and indexed up to three (3) months prior to the month of latest due date of bid submission as per following formula-

$$P = R + 0.425 \times R \times \frac{(X_N - X_0)}{X_0} + 0.425 \times R \times \frac{(Y_N - Y_0)}{Y_0}$$

Where

P = Updated value of work

R = Value of executed work

X_N = All India Avg. Consumer Price index for industrial workers for three months prior to the month of latest due date of bid submission (e.g. If latest bid submission date is 02-Mar-17, then bid submission month shall be reckoned as March'17 and index for Dec'2016 shall be considered).

X₀ = All India Avg. Consumer Price index for industrial workers for last month of work execution

Y_N = Monthly Whole Sale Price Index for All Commodities for three months prior to the month of latest due date of bid submission (e.g. If latest bid submission date is 02-Mar-17, then bid submission month shall be reckoned as March'17 and index for Dec'2016 shall be considered).

Y₀ = Monthly Whole Sale Price Index for All Commodities for last month of work execution

- The evaluation currency for this tender shall be INR.

Explanatory Notes for Technical Criteria (B2):

- VOID
- Unless otherwise specified, for the purpose of "B2 Technical Criteria", the word 'EXECUTED' means achievement of milestones as defined below -
 - "ACHIEVEMENT OF PHYSICAL QUANTITIES" as per PQRs.
 - "READINESS FOR COAL FILLING" of at least one Bunker, in respect of Mill Bunker Structure.
 - "CHARGING" in respect of Power Transformers/ Bus Ducts/ "HT/LT Switchgears" / "HT/LT Cabling".
 - For C&I works: "SYNCHRONISATION" in case of power project (excluding nuclear Projects) / "WORK EXECUTION of the value as defined in PQR" in case of industry & Nuclear Projects.
 - "BOILER LIGHT UP" in respect of Boiler / CFBC / ESP.**
 - "CHARGING OF ATLEAST ONE PASS" in respect of ESP(R&M)
 - "GAS IN" in respect of HRSG.
 - "STEAM BLOWING" in respect of Power Cycle Piping.
 - "HYDRAULIC TEST"/ ANY OTHER EQUIVALENT TEST LIKE "100% RT/UT OF WELDED JOINTS" of the system in respect of Pressure parts/ LP Piping/CW Piping.
 - "FULL LOAD OPERATION OF THE UNIT" in respect of Insulation work.
 - "SYNCHRONISATION" in respect of STG / GTG.
 - "SPINNING" in respect of HTG.
 - "GAS IN" in respect of FGD
- Boiler means HRSG or WHRB or any other types of Steam Generator.
- Power Cycle piping means Main Steam, Hot Reheat, Cold Reheat, HP Bypass.
- For the purpose of evaluation of the PQR, one MW shall be considered equivalent to 3.5 TPH where ever rating of HRSG/BOILER is mentioned in MW. Similarly, where ever rating of Gas Turbine is mentioned in terms of Frame size, ISO rating of the same in terms of MW shall be considered for evaluation.

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Explanatory Notes for PQR -C (Financial):

C-1:

- i. Bidder to submit Audited Balance Sheet and Profit and Loss Account for the respective years as indicated against C-1 above.
- ii. Evaluation of Turnover criteria shall be calculated from the Audited Balance Sheet and Profit & Loss Account for the three Financial Years (FY).
- iii. In case audited Financial statements have not been submitted for all the three years as indicated against C-1 above, then the applicable audited statements submitted by the bidders against the requisite three years, will be averaged for three years.
- iv. If financial statements are not required to be audited statutorily, then instead of audited financial statements, financial statements are required to be certified by Chartered Accountant.

C-2: Net Worth (Only in case of companies) of the bidder should be positive.

Note: Net worth shall be calculated based on the latest Audited Accounts as furnished for 'C-1' above.

Net worth = Paid up share capital + Reserves

C-3: Bidder must have earned profit in any one of the three financial years as applicable in the last three financial years as furnished for 'C-1' above.

Note: PROFIT shall be PBT earned during any one year of last three financial years as in 'C-1' above.

C-4: Bidder must not be under Bankruptcy Code Proceedings (IBC) by NCLT or under Liquidation / BIFR, which will render him ineligible for participation in this tender, and shall submit undertaking to this effect.

Common Explanatory Notes:

1. For evaluation of PQR, in case Bidder alone does not meet the pre-qualifying technical criteria B1 above, bidder may utilize the experience of its Parent/ Subsidiary Company along with its own experience, subject to following:
 - a. The parent company shall have a controlling stake of $\geq 50\%$ in the subsidiary company (as per Format-1).
 - b. The Parent Company/ Subsidiary Company of which experience is being utilized for bidding shall submit Security Deposit(SD) equivalent to 1% of the total contract value
 - c. The parent/ subsidiary company and bidder shall provide an undertaking that they are jointly or severally responsible for successful performance of the contract (as per Format-2).
 - d. In case Bidder is submitting bid as a Consortium Partner, option of utilizing experience of parent/subsidiary Company can be availed by Prime Bidder only.
 - e. Parent Company/ Subsidiary Company of which experience is being used for bidding, cannot participate as a 'Standalone Bidder' or as a 'Consortium bidder'.
2. **Completion date for achievement of the technical criteria specified in the Common QR should be in the last 7 years ending on the 'latest date of Bid Submission' of Tender irrespective of date of the start of work. Completion date shall be reckoned from the "FY quarter of bid submission"**
(For e.g – Work completed on 01.01.2014 shall be considered even if latest date of bid submission is 20.03.2021)
3. "Executed" means the bidder should have achieved the technical criteria specified in the Common QR even if the Contract has not been completed or closed.
4. In case the Experience/PO/WO certificate enclosed by bidders do not have separate break up of prices for the E&C portion for Electrical and C&I works (i.e. the certificates enclosed are for composite order for supply and erection of Electrical and C&I and other works if any),

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then value of Erection & Commissioning for the Electrical and C&I portion shall be considered as 15% of the price for supply & erection of Electrical and C&I.

5. Following shall be complied with in case of consortium:
- a. The Prime Bidder and Consortium Partner(s) are required to enter in to a consortium agreement and certify to BHEL regarding existence and validity of their consortium agreement in line with validity period mentioned in NIT.
 - b. Prime Bidder and Consortium partners shall be approved by Customer for being considered for the tender (applicable if customer approval is required).
 - c. Number of partners including prime Bidder shall be NOT more than 3 (three).
 - d. Prime Bidder alone shall necessarily comply with "B1 Technical Criteria" except for mechanical package where B1 criteria is not applicable.
 - e. Prime Bidder and Consortium Partner shall together comply with the 'Pre-Qualification Requirements' specified for the respective category of technical requirement as per "B2 technical criteria".
 - f. Prime Bidder shall comply with all other Pre Qualifying criteria for the Tender unless otherwise specified.
 - g. All other conditions shall be read in conjunction with clause no 23.0 of NIT.
 - h. Prime Bidder shall be the Bidder who has a major share of work.
 - i. Prime Bidder shall be responsible for the overall execution of the Contract.
 - j. Performance shall be evaluated for Prime Bidder and the Consortium partner for their respective scope of work.
 - k. In case the Consortium partner backs out, another consortium partner meeting the QRs, has to be engaged by Prime Bidder and if not, the respective work will be withdrawn and executed on risk and cost basis of the prime bidder.
 - l. In case Prime Bidder withdraws or insolvency / liquidation / winding up proceedings have been initiated / admitted against the Prime Bidder, BHEL reserves the right to cancel, terminate or short close the contract or take any other action to safeguard BHEL's interest in the Project / Contract. This action will be without prejudice to any other action that BHEL can take under Law and the Contract to safeguard interests of BHEL
 - m. After successful execution of one work with a consortium partner under direct orders of BHEL, the Prime Bidder shall be eligible for becoming a 'standalone' bidder for works similar to that for which consortium partner was engaged, for subsequent tenders.
The Consortium partner shall submit SD equivalent to 1% of the total contract value in addition to the SD to be submitted by the Prime Bidder for the total contract value.

BIDDER SHALL SUBMIT ABOVE PRE-QUALIFICATION CRITERIA FORMAT, DULY FILLED-IN, SPECIFYING RESPECTIVE ANNEXURE NUMBER AGAINST EACH CRITERIA AND FURNISH RELEVANT DOCUMENT INCLUSIVE OF WORK ORDER AND WORK COMPLETION CERTIFICATE ETC IN THE RESPECTIVE ANNEXURES IN THEIR OFFER.

Credentials submitted by the bidder against "PRE QUALIFYING CRITERIAS" shall be verified for its authenticity. In case, any credential (s) is/are found unauthentic, offer of the bidder is liable to the rejection. BHEL reserves the right to initiate any further action as per extant guidelines for Suspension of Business Dealings.

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Format 1

NA

Format 2

NA

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ANNEXURE - 2

CHECK LIST

NOTE: - Tenderers are required to fill in the following details and no column should be left blank

1	Name and Address of the Tenderer		
2	Details about type of the Firm/Company		
3.a	Details of Contact person for this Tender	Name : Mr/Ms Designation: Telephone No: Mobile No: Email ID: Fax No:	
3.b	Details of alternate Contact person for this Tender	Name : Mr/Ms Designation: Telephone No: Mobile No: Email ID: Fax No:	
4	EMD DETAILS	DD No: Date : Bank : Amount: Please tick (☐) whichever applicable:- ~~ONE TIME EMD~~ / ONLY FOR THIS TENDER	
5	Validity of Offer	TO BE VALID FOR SIX MONTHS FROM DUE DATE	
		APPLICABILITY (BY BHEL)	ENCLOSED BY BIDDER
6	Whether the format for compliance with PRE QUALIFICATION CRITERIA (ANNEXURE-I) is understood and filled with proper supporting documents referenced in the specified format	Applicable	YES / NO
7	Audited profit and Loss Account for the last three years	Applicable	YES/NO
8	Copy of PAN Card	Applicable/Not Applicable	YES/NO
9	Whether all pages of the Tender documents including annexures, appendices etc. are read understood and signed	Applicable/Not Applicable	YES/NO
10	Integrity Pact	Applicable/Not Applicable	YES/NO
11	Declaration by Authorized Signatory	Applicable/Not Applicable	YES/NO
12	No Deviation Certificate	Applicable/Not Applicable	YES/NO
13	Declaration confirming knowledge about Site Conditions	Applicable/Not Applicable	YES/NO
14	Declaration for relation in BHEL	Applicable/Not Applicable	YES/NO
15	Non-Disclosure Certificate	Applicable/Not Applicable	YES/NO

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16	Bank Account Details for E-Payment	Applicable/ ~~Not Applicable~~	YES/NO
17	Capacity Evaluation of Bidder for current Tender	Applicable	~~YES/NO~~
18	Tie Ups/Consortium Agreement are submitted as per format	NOT Applicable	~~YES/NO~~
19	Power of Attorney for Submission of Tender/Signing Contract Agreement Power of Attorney of Consortium Partner.	Applicable/ ~~Not Applicable~~	YES/NO
20	Analysis of Unit rates	Applicable/ ~~Not Applicable~~	YES/NO

NOTE: STRIKE OFF 'YES' OR 'NO', AS APPLICABLE. TENDER NOT ACCOMPANIED BY THE PRESCRIBED **ABOVE APPLICABLE DOCUMENTS** ARE LIABLE TO BE SUMMARILY REJECTED.

DATE :

AUTHORISED SIGNATORY

(With Name, Designation and Company seal)

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ANNEXURE-3

Certificate by Chartered Accountant on letter head

(applicable upto 31st March'2021 in line with MSME notification no. S.O. 2119 (E), dated 26th June'2020)

This is to Certify that M/S
(hereinafter referred to as 'company') having its registered office at
..... is registered under MSMED Act 2006, (Entrepreneur
Memorandum No (Part - II)/ Udyam Registration Certificate No.
..... dtd:, Category: (Micro/Small/Medium)).
(Copy enclosed).

Further verified from the Books of Accounts that the investment of the company as per the latest audited financial year as per MSMED Act 2006 is as follows:-

1. ~~For Manufacturing Enterprises:~~ Investment in plant and machinery (i.e. original cost excluding land and building and the items specified by the Ministry of Small Scale Industries vide its notification No. S.O.1722(E) dated October 5, 2006:
Rs Laacs
2. ~~For Service Enterprises:~~ Investment in equipment (original cost excluding land and building and furniture, fittings and other items not directly related to the service rendered or as may be notified under the ~~MSMED~~ Act, 2006:
Rs Laacs
3. ~~For Enterprises~~ (having EM II Certificate/ valid NSIC Certificate or Udyog Aadhar Memorandum): Investment in plant and machinery or equipment is Rs Laacs and turnover is Rs Laacs (as notified in MSME notification no. S.O. 2119 (E) dated 26.06.2020)
4. ~~For Enterprises~~ (having EM II Certificate/ valid NSIC Certificate or Udyog Aadhar Memorandum): Investment in plant and machinery or equipment is Rs Laacs and turnover is Rs Laacs (as notified in MSME notification no. S.O. 2119 (E) dated 26.06.2020)

(Strike off whichever is not applicable)

The above investment of Rs Laacs is within permissible limit of Rs Laacs for Micro / Small/ Medium (Strike off which is not applicable) Category under MSMED Act 2006.

Or

The enterprise has been graduated upward from its original category (micro/small/medium) (strike off which is not applicable); the enterprise shall maintain its prevailing status till expiry of one year from the close of year of registration, as notified vide S.O. No. 2119 (E) dated 26.06.2020 published in the gazette notification dated 26.06.2020 by Ministry of MSME.

Or

The enterprise has been reverse graduated from its original category (micro/small/medium) (strike off which is not applicable); the enterprise will continue in its present category till the closure of the financial year and it will be given the benefit of the changed status only with effect from 1st April of the financial year following the year in which such change took place, as notified vide S.O. No. 2119 (E) dated 26.06.2020 published in the gazette notification dated 26.06.2020 by Ministry of MSME.

Date:

(Signature)

Name:

Membership Number:

Seal of the Chartered Accountant

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ANNEXURE-4

Reverse Auction Process Compliance Form

(The bidders are required to print this on their company's letterhead and sign, stamp before RA)

To

- M/s. {Service provider}
- Postal address}

Sub: Agreement to the Process related Terms and Conditions

Dear Sir,

This has reference to the Terms & Conditions for the Reverse Auction mentioned in the RFQ document for {Items} against BHEL enquiry/ RFQ no.{} dt. {.....}

This letter is to confirm that:

- 1) The undersigned is authorized official/ representative of the company to participate in RA and to sign the related documents.
- 2) We have studied the Reverse Auction guidelines (as available on www.bhel.com), and the Business rules governing the Reverse Auction as mentioned in your letter and confirm our agreement to them.
- 3) We also confirm that we have taken the training on the auction tool and have understood the functionality of the same thoroughly.
- 4) We also confirm that, in case we become L1 bidder, we will FAX/ email the price confirmation & break up of our quoted price as per Annexure - VI within **two** working days (of BHEL) after completion of RA event, besides sending the same by registered post/ courier both to M/s. BHEL and M/s. {Service provider.}

We, hereby confirm that we will honor the Bids placed by us during the auction process.

With regards

Signature with company seal

Name:

Company / Organization:

Designation within Company / Organization:

Address of Company / Organization:

Sign this document and FAX/ email it to M/s {Service provider} at {.....} prior to start of the Event.

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ANNEXURE – 5

Authorization of representative who will participate in the on line Reverse Auction Process:

1	NAME OF THE BIDDER	
2	NAME & DESIGNATION OF OFFICIAL	
3	POSTAL ADDRESS (COMPLETE)	
4	TELEPHONE NOS. (LAND LINE & MOBILE BOTH)	
5	E-MAIL ADDRESS	
6	NAME OF PLACE/ STATE/ COUNTRY, WHEREFROM S/HE WILL PARTICIPATE IN THE REVERSE AUCTION	

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ANNEXURE – 6

Reverse Auction price confirmation and breakup
(To be submitted by L1 bidder after completion of Reverse Auction)

To

- M/s. Service provider
- Postal address

CC: M/s BHEL POWER SECTOR WESTERN REGION, Nagpur

Sub: **Final price quoted during Reverse Auction and price breakup**

Dear Sir,

We confirm that we have quoted.

Rs. _____ (in value) &
_____ (in words)

for item(s) covered under tender enquiry No. dtd
.....

Total price of the items covered under above cited enquiries is inclusive of {Packing & forwarding, GST, E.D., C.S.T., freight and insurance charges up to {.....} District,{.....} State and Type Test Charges etc., (exclusive of service tax), other as per NIT}

as our final landed prices as quoted during the Reverse Auction conducted today {date _____} which will be valid for a period of {___ **in nos. & in words** ___} days. as mentioned in the subject tender.

Yours sincerely,

For _____

Name:

Company:

Date:

Seal:

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ANNEXURE – 7

INTEGRITY PACT

Between

Bharat Heavy Electricals Ltd. (BHEL), a company registered under the Companies Act 1956 and having its registered office at "BHEL House", Siri Fort, New Delhi -110049 (India) hereinafter referred to as "The Principal", which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the ONE PART

and

_____, (description of the party along with address), hereinafter referred to as "The Bidder/ Contractor" which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the OTHER PART

Preamble

The Principal intends to award, under laid-down organizational procedures, contract/s for _____

_____ (hereinafter referred to as "Contract"). The Principal values full compliance with all relevant laws of the land, rules and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder(s)/ Contractor(s).

In order to achieve these goals, the Principal will appoint panel of Independent External Monitor(s) (IEMs), who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

Section 1-Commitments of the Principal

- 1.1 The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:
 - 1.1.1 No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.
 - 1.1.2 The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/ additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.
 - 1.1.3 The Principal will exclude from the process all known prejudiced persons.
- 1.2 If the Principal obtains information on the conduct of any of its employees which is a penal offence under the Indian Penal Code 1860 and Prevention of Corruption Act 1988 or any other statutory penal enactment, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions.

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Section 2 -Commitments of the Bidder(s)/ Contractor(s)

- 2.1 The Bidder(s)/ Contractor(s) commit himself to take all measures necessary to prevent corruption. The Bidder(s)/ Contractor(s) commits himself to observe the following principles during participation in the tender process and during the contract execution.
 - 2.1.1 The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to the Principal or to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material, immaterial or any other benefit which he/ she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.
 - 2.1.2 The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any illegal or undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.
 - 2.1.3 The Bidder(s)/ Contractor(s) will not commit any penal offence under the relevant Indian Penal Code (IPC) and Prevention of Corruption Act; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
 - 2.1.4 Foreign Bidder(s)/ Contractor(s) shall disclose the name and address of agents and representatives in India and Indian Bidder(s)/ Contractor(s) to disclose their foreign principals or associates. The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.
- 2.2 The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.
- 2.3 The Bidder(s)/ Contractor(s) shall not approach the Courts while representing the matters to IEMs and shall await their decision in the matter.

Section 3 -Disqualification from tender process and exclusion from future contracts

If the Bidder(s)/ Contractor(s), before award or during execution has committed a transgression through a violation of Section 2 above, or acts in any other manner such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/ Contractor(s) from the tender process , terminate the contract, if already awarded, exclude from future business dealings and/ or take action as per the separate "Guidelines on Banning of Business dealings with Suppliers/

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Contractors", framed by the Principal.

Section 4 -Compensation for Damages

- 4.1 If the Principal has disqualified the Bidder (s) from the tender process before award / order acceptance according to Section 3, the Principal is entitled to demand and recover the damages equivalent to Earnest Money Deposit/ Bid Security.
- 4.2 If the Principal is entitled to terminate the Contract according to Section 3, or terminates the Contract in application of Section 3 above , the Bidder(s)/ Contractor (s) transgression through a violation of Section 2 above shall be construed breach of contract and the Principal shall be entitled to demand and recover from the Contractor an amount equal to 5% of the contract value or the amount equivalent to Security Deposit/ Performance Bank Guarantee , whichever is higher, as damages, in addition to and without prejudice to its right to demand and recover compensation for any other loss or damages specified elsewhere in the contract.

Section 5 -Previous Transgression

- 5.1 The Bidder declares that no previous transgressions occurred in the last 3 (three) years with any other company in any country conforming to the anti-corruption approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.
- 5.2 If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason or action can be taken as per the separate "Guidelines on Banning of Business dealings with Suppliers/ Contractors", framed by the Principal.

Section 6 -Equal treatment of all Bidder (s)/ Contractor (s) / Sub-contractor (s)

- 6.1 The Principal will enter into Integrity Pacts with identical conditions as this Integrity Pact with all Bidders and Contractors.
- 6.2 In case of Sub-contracting, the Principal Contractor shall take the responsibility of the adoption of Integrity Pact by the Sub-contractor(s) and ensure that all Sub-contractors also sign the Integrity Pact.
- 6.3 The Principal will disqualify from the tender process all Bidders who do not sign this Integrity Pact or violate its provisions.

Section 7 -Criminal Charges against violating Bidders/ Contractors /Subcontractors

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor which

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constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the Vigilance Office.

Section 8 -Independent External Monitor(s)

- 8.1 The Principal appoints competent and credible panel of Independent External Monitor (s) (IEMs) for this Integrity Pact. The task of the IEMs is to review independently and objectively, whether and to what extent the parties comply with the obligations under this Integrity Pact.
- 8.2 The IEMs are not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, BHEL.
- 8.3 The IEMs shall be provided access to all documents/ records pertaining to the Contract, for which a complaint or issue is raised before them as and when warranted. However, the documents/records/information having National Security implications and those documents which have been classified as Secret/Top Secret are not to be disclosed.
- 8.4 The Principal will provide to the IEMs sufficient information about all meetings among the parties related to the Contract provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the IEMs the option to participate in such meetings.
- 8.5 The advisory role of IEMs is envisaged as that of a friend, philosopher and guide. The advice of IEMs would not be legally binding and it is restricted to resolving issues raised by a Bidder regarding any aspect of the tender which allegedly restricts competition or bias towards some Bidders. At the same time, it must be understood that IEMs are not consultants to the Management. Their role is independent in nature and the advice once tendered would not be subject to review at the request of the organization.
- 8.6 For ensuring the desired transparency and objectivity in dealing with the complaints arising out of any tendering process or during execution of Contract, the matter should be examined by the full panel of IEMs jointly, who would look into the records, conduct an investigation, and submit their joint recommendations to the Management.
- 8.7 The IEMs would examine all complaints received by them and give their recommendations/ views to the CMD, BHEL at the earliest. They may also send their report directly to the CVO, in case of suspicion of serious irregularities requiring legal/ administrative action. Only in case of very serious issue having a specific, verifiable Vigilance angle, the matter should be reported directly to the Commission. IEMs will tender their advice on the complaints within 30 days.
- 8.8 The CMD, BHEL shall decide the compensation to be paid to the IEMs and its terms and conditions.
- 8.9 IEMs should examine the process integrity; they are not expected to concern themselves with fixing of responsibility of officers. Complaints alleging mala fide on the part of any officer of the Principal should be looked into by the CVO of the Principal.
- 8.10 If the IEMs have reported to the CMD, BHEL, a substantiated suspicion of an offence under relevant

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Indian Penal Code / Prevention of Corruption Act, and the CMD, BHEL has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the IEMs may also transmit this information directly to the Central Vigilance Commissioner, Government of India.

- 8.11 After award of work, the IEMs shall look into any issue relating to execution of Contract, if specifically raised before them. As an illustrative example, if a Contractor who has been awarded the Contract, during the execution of Contract, raises issue of delayed payment etc. before the IEMs, the same shall be examined by the panel of IEMs. Issues like warranty/ guarantee etc. shall be outside the purview of IEMs.
- 8.12 However, the IEMs may suggest systemic improvements to the management of the Principal, if considered necessary, to bring about transparency, equity and fairness in the system of procurement.
- 8.13 The word 'Monitor' would include both singular and plural.

Section 9 -Pact Duration

- 9.1 This Integrity Pact shall be operative from the date this Integrity Pact is signed by both the parties till the final completion of contract for successful Bidder, and for all other Bidders 6 months after the Contract has been awarded. Any violation of the same would entail disqualification of the bidders and exclusion from future business dealings.
- 9.2 If any claim is made/ lodged during currency of this Integrity Pact, the same shall be binding and continue to be valid despite the lapse of this Pact as specified above, unless it is discharged/ determined by the CMD, BHEL.

Section 10 -Other Provisions

- 10.1 This Integrity Pact is subject to Indian Laws and exclusive jurisdiction shall be of the competent Courts as indicated in the Tender or Contract, as the case may be.
- 10.2 Changes and supplements as well as termination notices need to be made in writing.
- 10.3 If the Bidder(s)/ Contractor(s) is a partnership or a consortium or a joint venture, this Integrity Pact shall be signed by all partners of the partnership or joint venture or all consortium members.
- 10.4 Should one or several provisions of this Integrity Pact turn out to be invalid, the remainder of this Integrity Pact remains valid. In this case, the parties will strive to come to an agreement to their original intentions.
- 10.5 Only those bidders / contractors who have entered into this Integrity Pact with the Principal would be competent to participate in the bidding. In other words, entering into this Integrity Pact would be a preliminary qualification.

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- 10.6 In the event of any dispute between the Principal and Bidder(s)/ Contractor(s) relating to the Contract, in case, both the parties are agreeable, they may try to settle dispute through Mediation before the panel of IEMs in a time bound manner. In case, the dispute remains unresolved even after mediation by the panel of IEMs, either party may take further action as the terms & conditions of the Contract. The fees/expenses on dispute resolution through mediation shall be shared by both the parties. Further, the mediation proceedings shall be confidential in nature and the parties shall keep confidential all matters relating to the mediation proceedings including any settlement agreement arrived at between the parties as outcome of mediation. Any views expressed, suggestions, admissions or proposals etc. made by either party in the course of mediation shall not be relied upon or introduced as evidence in any further arbitral or judicial proceedings, whether or not such proceedings relate to the dispute that is the subject of mediation proceedings. Neither of the parties shall present IEMs as witness in any Alternative Dispute Resolution or judicial proceedings in respect of the dispute that was subject of mediation.

**SHUBHAN
GI
TEMBHURNE**

Digitally signed by SHUBHANGI
TEMBHURNE
DN: c=IN, o=Bharat Heavy
Electricals Ltd, ou=PSWR Nagpur,
postalCode=440001,
st=Maharashtra,
2.5.4.20=278fa25aec6b3087d6f2f6
445d90261392857202d2a89221ad
b013fe50345e25, cn=SHUBHANGI
TEMBHURNE
Date: 2022.04.08 16:44:49 +05'30'

For & On behalf of the Principal

For & On behalf of the Bidder/ Contractor

(Office Seal)

(Office Seal)

Place-----

Date-----

Witness:_____

Witness:_____

(Name & Address) _____

(Name & Address) _____

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ANNEXURE - 8

UNDERTAKING

(To be typed and submitted in the Letter Head of the Company/Firm of Bidder)

To,

(Write Name & Address of Officer of BHEL inviting the Tender)

Dear Sir/Madam,

Sub: DECLARATION REGARDING INSOLVENCY/ LIQUIDATION/ BANKRUPTCY PROCEEDINGS

Ref: NIT/Tender Specification No: BHE/PW/PUR/MAFGD-BLR MOD SCR /2571

I/We, _____ declare that, I/We
am/are not under insolvency resolution process or liquidation or Bankruptcy Code Proceedings (IBC) as
on date, by NCLT or any adjudicating authority/authorities, which will render us ineligible for participation
in this tender.

**Sign. of the AUTHORISED SIGNATORY
(With Name, Designation and Company seal)**

Place:

Date:

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Annexure-9

DECLARATION

Date: _____

To _____
BHEL, _____

Email: _____

Sub: Details of related firms and their area of activities

Dear Sir/ Madam,

Please find below details of firms owned by our family members that are doing business/ registered for same item with BHEL, _____ (NA, if not applicable).

1	Material Category/ Work Description	
	Name of Firm	
	Address of Firm	
	Nature of Business	
	Name of Family Member	
	Relationship	
2	Material Category/ Work Description	
	Name of Firm	
	Address of Firm	
	Nature of Business	
	Name of Family Member	
	Relationship	
.....		

Note: I certify that the above information is true and I agree for penal action from BHEL in case any of the above information furnished is found to be false.

Regards,
(_____)

From: M/s _____
Supplier Code: _____
Address: _____

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Annexure-10

**DECLARATION REGARDING MINIMUM LOCAL CONTENT IN LINE WITH
REVISED PUBLIC PROCUREMENT (PREFERENCE TO MAKE IN INDIA), ORDER 2017 DATED 04TH JUNE,
2020 AND SUBSEQUENT ORDER(S)**

(To be typed and submitted in the Letter Head of the Entity/Firm providing certificate as applicable)

To,

(Write Name & Address of Officer of BHEL inviting the Tender)

Dear Sir,

Sub: Declaration reg. minimum local content in line with Public Procurement (Preference to Make in India), Order 2017-Revision, dated 04th June, 2020 and subsequent order(s).

Ref : 1) NIT/Tender Specification No:
2) All other pertinent issues till date

We hereby certify that the items/works/services offered by..... *(specify the name of the organization here)* has a local content of _____ % and this meets the local content requirement for '**Class-I local supplier**' / '**Class II local supplier**' ** as defined in Public Procurement (Preference to Make in India), Order 2017-Revision dated 04.06.2020 issued by DPIIT and subsequent order(s).

The details of the location(s) at which the local value addition is made are as follows:

- | | |
|----------|----------|
| 1. _____ | 2. _____ |
| 3. _____ | 4. _____ |

...

...

...

Thanking you,
Yours faithfully,

**(Signature, Date & Seal of
Authorized Signatory of the Bidder)**

**** - Strike out whichever is not applicable.**

Note:

1. Bidders to note that above format Duly filled & signed by authorized signatory, shall be submitted along with the techno-commercial offer.
2. In case the bidder's quoted value is in excess of Rs. 10 crores, the authorized signatory for this declaration shall necessarily be the statutory auditor or cost auditor of the company (in the case of companies) or a practising cost accountant or practicing chartered accountant (in respect of suppliers other than companies).
3. In the event of false declaration, actions as per the above order and as per BHEL Guidelines shall be initiated against the bidder.

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Annexure-11

DECLARATION REGARDING COMPLIANCE TO RESTRICTIONS UNDER RULE 144 (xi) OF GFR 2017

(To be typed and submitted in the Letter Head of the Entity/Firm providing certificate as applicable)

To,

(Write Name & Address of Officer of BHEL inviting the Tender)

Dear Sir,

Sub: Declaration regarding compliance to Restrictions under Rule 144 (xi) of GFR 2017

Ref : 1) NIT/Tender Specification No:
2) All other pertinent issues till date

I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and on sub-contracting to contractors from such countries. I certify that _____ *(specify the name of the organization here),*

- (a) is not from such a country / ☐
(b) has been registered with the Competent Authority *(attach valid registration by the Competent Authority, i.e., the Registration Committee constituted by the Dept. for Promotion of Industry and Internal Trade (DPIIT));* ☐
and will not sub-contract any work to a contractor from such countries unless such contractor is registered with the Competent Authority. *(attach relevant valid registration, if applicable)*

I hereby certify that we fulfil all requirements in this regard and is eligible to be considered.

Thanking you,
Yours faithfully,

**(Signature, Date & Seal of
Authorized Signatory of the Bidder)**

Note: Bidders to note that in case above certification given by a bidder, whose bid is accepted, is found to be false, then this would be a ground for immediate termination and for taking further action in accordance with law and as per BHEL guidelines.

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Annexure-12: IMPORTANT INFORMATION

E -Tender for this work is invited by BHEL PSWR NAGPUR and offer shall be submitted through BHEL e-procurement portal only. All correspondences regarding this tender shall be through E-procurement portal.

Postal Address:

AGM /Purchase BHEL PSWR,
SRIMOHINI COMPLEX, Floor No. 5 & 6, 345 KINGSWAY, NAGPUR 440001, INDIA

Following are the concerned BHEL officials to whom bidders can contact in case of any difficulty:

GM Purchase, Email: prchiwarkar@bhel.in. Ph: +91 – 712 – 2858 – 633

DGM, Purchase, Email: kamleshbhel@bhel.in +91 – 712 – 2858 – 645

Dy Manager Purchase, Email: shubh@bhel.in Ph: +91-712 – 2858 –742

1. **Refer Chapter XII of Volume IB Special Conditions of Contract regarding Suspension of Business Dealings: The abridged version of extant 'Guidelines for suspension of business dealings with suppliers/ contractors' has now been uploaded on www.bhel.com on "supplier registration page" at the following link:**
http://www.bhel.com/vender_registration/pdf/Suspension_guidelines_abridged.pdf
2. **All Statutory Requirements as applicable for this project shall be complied with.**
3. **Following clause shall form part of the HSE documents issued under Chapter IX of Volume IB 'Special Conditions of Contract'**

"In case of any financial deduction made by Customer for lapses of safety other than what is provided elsewhere in the contract, the same shall be charged on back-to-back basis on the defaulting contractor without prejudice to any other right spelt anywhere in the tender /contract"
4. **"Pradhan Mantri Kaushal Vikas Yojna:** The contractor shall, at all stages of work deploy skilled/semi-skilled tradesmen who are qualified and possess certificate in particular trade from CPWD Training Institute/Industrial Training Institute/ National Institute of Construction Management and Research (NICMAR), National Academy of Construction, CIDC or any similar reputed and recognized Institute managed/ certified by State/ Central Government. The number of such qualified tradesmen shall not be less than 20% of total skilled/semi-skilled workers required in each trade at any stage of work. The contractor shall submit number of man days required in respect of each trade, its scheduling and the list of qualified tradesmen along with requisite certificate from recognized Institute to Engineer-in-Charge for approval. Notwithstanding such approval, if the tradesmen are found to have inadequate skill to execute the work of respective trade, the contractor shall substitute such tradesmen within two days of written notice from Engineer-in-Charge. Failure on the part of contractor to obtain approval of Engineer-in-Charge or failure to deploy qualified tradesmen will attract a compensation to be paid by contractor at the rate of Rs.100 per such tradesman per day. Decision of Engineer-in-Charge as to whether particular tradesman possesses requisite skill and amount of compensation in case of default shall be final and binding".
5. **The clause 2.7.9.1 below is added under the heading "Rights of BHEL" of General Conditions of Contract Volume-IC GCC.**

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2.7.9.1 Provision of Penalty in case of slippage of Intermediate Milestones:

- i) ~~Two major Intermediate Milestones are mentioned as M1 & M2 in Chapter VI: Time Schedule of Vol IA Technical Conditions of Contract.~~
- ii) ~~In case of slippage of these identified Intermediate Milestones, Delay Analysis shall be carried out on achievement of each of these two Intermediate Milestones in reference to Form 14.~~
- iii) ~~In case delay in achieving M1 Milestone is solely attributable to the contractor, 0.5% per week of Executable Contract Value*, limited to maximum 2% of Executable Contract Value, will be withheld.~~
- iv) ~~In case delay in achieving M2 Milestone is solely attributable to the contractor, 0.5% per week of Executable Contract Value*, limited to maximum 3% of Executable Contract Value, will be withheld.~~
- v) ~~Amount already withheld, if any against slippage of M1 milestone, shall be released only if there is no delay attributable to contractor in achievement of M2 Milestone.~~
- vi) ~~Amount required to be withheld on account of slippage of identified intermediate milestone(s) shall be withheld out of respective milestone payment and balance amount (if any) shall be withheld @10% of RA Bill amount from subsequent RA bills.~~
- vii) ~~Final deduction towards LD (if applicable as per clause 2.7.9 above), on account of delay attributable to contractor shall be based on final delay analysis on completion / closure of contract. Withheld amount, if any due to slippage of identified intermediate milestone(s) shall be adjusted against LD or released as the case may be.~~
- viii) ~~In case of termination of contract due to any reason attributable to contractor before completion of work, the amount already withheld against slippage of intermediate milestones shall not be released and be converted into recovery.~~

~~* **Executable Contract Value** – Value of work for which inputs/ fronts were made available to contractor and were scheduled for execution till the date of achievement of that milestone.~~

6. The following clause is added under clause 1.10 Security Deposit in Vol-1C:

Clause No 1.10.8 of Vol-IC General Conditions of Contract: Timely Submission of Security Deposit for Execution of the contract: “Bidder agrees to submit Security Deposit required for execution of the contract within the time period mentioned. In case of delay in submission of Security Deposit, enhanced Security Deposit which would include interest (Base rate of SBI +6%) for the delayed period, shall be submitted by the bidder. Further, if Security Deposit is not submitted till such time the first bill becomes due, the amount of Security Deposit due shall be recovered as per terms defined in NIT/contract, from the bills along with due interest.”

7. Acceptance of Bank Guarantee (BG)

Revision in Acceptance of Bank Guarantee (BG) Clause no. 1.10.3 (iv) of Vol I C GCC:

Clause No. 1.10.3 (iv) of Vol IC GCC is revised as below: -

“Bank Guarantee issued by:

- a. Any of the BHEL consortium bank listed below:
 - State Bank of India
 - ABN Amro Bank N.V.
 - Bank of Baroda
 - Canara Bank
 - Citi Bank N.A.
 - Corporation Bank
 - Deutsche Bank
 - HDFC Bank Ltd.
 - The Hongkong and Shanghai Banking Corporation Ltd
 - ICICI Bank Ltd.
 - IDBI Ltd.

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Punjab National Bank
Standard Chartered Bank
State Bank of Travancore
State Bank of Hyderabad
Syndicate Bank

- b. Any public sector Bank (other than consortium banks) with a clause in the text of Bank Guarantee that **"It is enforceable at Nagpur, Maharashtra"**.
- c. Any private sector banks, with a clause in the text of Bank Guarantee that **"It is enforceable by being presented at any branch of the bank"**.

Note: "Bank Guarantees issued by Co-operative Banks are not acceptable".

8. Broad Terms & Conditions of Reverse Auction:

In continuation to Clause 19.0 of NIT (Notice Inviting Tender) following are the broad terms and conditions of Reverse Auction:

"BHEL shall be resorting to Reverse Auction (RA) (Guidelines as available on www.bhel.com) (<https://www.bhel.com/guidelines-reverse-auction-2021>) for this tender. RA shall be conducted among the techno-commercially qualified bidders.

Price bids of all techno-commercially qualified bidders shall be opened and same shall be considered for RA. In case any bidder(s) do(es) not participate in online Reverse Auction, their sealed envelope price bid along with applicable loading, if any, shall be considered for ranking."

Note:-

- 1. No benefits to MSE bidders w.r.t Reverse Auction Guidelines as available on www.bhel.com against works contract.**
- 2. In case of enquiry through e-procurement the sealed electronic price bid (e-bid) is to be treated as sealed envelope price bid.**

9. ~~Bidders kindly to take note that EMD (Earnest Money Deposit) shall be furnished by MSE bidders as well, as per the amount and procedure indicated in the NIT/GCC.~~

10. Guarantee Period Start date: Commencement Period for "Performance Guarantee for Workmanship" as per clause no 2.24 of Vol-IC GCC: commencing from the date of completion of work as certified by BHEL.

11. PRICE VARIATION COMPENSATION: 2.17 of Vol I C GCC shall not be Applicable for this contract.

12. OVER RUN COMPENSATION: Over Run Compensation Clause no. 2.12 of Vol I C GCC **shall not be Applicable for this contract.**

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TECHNICAL CONDITIONS OF CONTRACT (TCC)

BHARAT HEAVY ELECTRICALS LIMITED



TECHNICAL CONDITIONS OF CONTRACT (TCC)

SI No	DESCRIPTION	Chapter
Volume-IA	Part-I: Contract specific details	
1	Project Information	Chapter-I
2	Scope of Works	Chapter-II
3	Facilities in the scope of Contractor/BHEL (Scope Matrix)	Chapter-III
4	T&Ps and MMEs to be deployed by Contractor	Chapter-IV
5	T&Ps and MMEs to be deployed by BHEL on sharing basis	Chapter-V
6	Time Schedule	Chapter-VI
7	Terms of Payment	Chapter-VII
8	Taxes and Duties	Chapter-VIII
9	Estimated weight for various systems in scope of work (BOQ)	Chapter-IX
10	General	Chapter-X
11	Boiler Modification	Chapter-XI
12	Foundation & Grouting	Chapter-XII
13	Welding, Radiography, NDT, PWHT	Chapter-XIII
14	Lining & Insulation	Chapter-XIV
15	Painting	Chapter-XV
16	Testing, Pre-Commissioning, Commissioning	Chapter-XVI
17	Preservation & Protection of Components	Chapter-XVII
18	Guidelines for NDE and Heat Treatment Agency-PSWR	Annexure 1
19	11701_LAYOUT_OF_SCR_DUCTING_010819	Annexure 2
20	10857_SCR_flow diagram	Annexure 3

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter - I: Project Information

PROJECT INFORMATION		
SL No	Description	Details
1.1	Location	10 KM from Manuguru Town;
1.2	Nearest Railway Station	Manuguru (20 KM)
1.3	Nearest Airport/Seaport	Vijaywada (220 KM from site)
1.4	Access By Road/Major Cities	38 KM from Bhadrachalam, 345 KM from Hyderabad
1.5	Source of Coal	Singareni Coal Mines/Imported Coal
1.6	Source of Water	Godavari River
1.7	Meteorological Data:	
	Dry Bulb Temperature (Max/Min)	44.8° C/13°C
	Humidity (Max/Min)	82%/31%
	Average Rainfall	1250 mm annually
	Wind Speed	Basic wind speed of 44 m/sec as per IS - 875(Part-3)
	Seismic Zone	Basic wind speed of 44 m/sec as per IS - 875(Part-3)

The Bidder shall visit site and get acquainted himself with the conditions prevailing at site before submission of the bid. The information's given here in under are for general guidance and shall not be contractually binding on BHEL/ Owner. All relevant site data's/information's as may be necessary shall have to be obtained/ collected by the Bidder.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: Scope of Work

2.0 Scope of work:

The scope of work shall comprise but not limited to the following: (All the works mentioned hereunder shall be carried out within the accepted rate unless otherwise specified.)

Erection, Testing & Assistance for commissioning of Boiler modifications for SCR including application of thermal Insulation, supply and application of final painting, Collection / Loading / Unloading/ Transportation of Materials from BHEL / Client's Stores / Storage Yard and transportation to site, and handing over of 4 units at 4x270 MW BTPS Manuguru FGD project.

1. The works under the scope of these specifications is broadly as under:

- **Flue gas duct from Economiser to SCR**
 - **Economiser Bypass duct**
 - **SCR Bypass duct**
 - **Modified duct between Economiser to APH**
 - **SCR supporting structure & columns**
 - **SCR Inlet Biplane Damper- 8 nos.**
 - **SCR Outlet Biplane Damper- 8 nos.**
 - **SCR Bypass Biplane Damper- 8 nos.**
 - **Economizer Bypass Biplane Damper- 8 nos.**
 - **Economizer Bypass Control Damper - 8 nos.**
2. Pre-assembly, if any, Pre-erection checks as applicable
 3. Non-Destructive Examination & post weld heat treatment
 4. Surface preparation and Final Painting of erected items
 5. Completion of all facilities/systems including completion of all pending works / points w.r.t tender.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: Facilities in the scope of Contractor/BHEL

(SCOPE MATRIX)

Sl. No	Description Part I	Scope / to be taken care by		Remarks
		BHEL	Bidder	
3.1	Establishment			
3.1.1	For construction purpose:			
a	Open space for office (as per availability)	Yes		Free of charges. Location will be finalized after joint survey with owner
b	Open space for storage (as per availability)	Yes		Free of charges. Location will be finalized after joint survey with owner
c	Construction of bidder's office, canteen and storage building including supply of materials and other services		Yes	
d	Bidder's all office equipments, office / store / canteen consumables		Yes	
e	Canteen facilities for the bidder's staff, supervisors and engineers etc		Yes	
f	Fire fighting equipments like buckets, extinguishers etc		Yes	
g	Fencing of storage area, office, canteen etc of the bidder		Yes	
3.1.2	For living purposes of the Bidder			
a	Open space for labour colony (as per availability)		Yes	Contractor has to make his own arrangements for shelter and transportation of labours as per their requirement.
b	Labour Colony with internal roads, sanitation, complying with statutory requirements		Yes	
3.2	Electricity			
3.2.1	Electricity for construction purposes only of Voltage 415/440 V, 3 phase, 50Hz			

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: Facilities in the scope of Contractor/BHEL

(SCOPE MATRIX)

Sl. No	Description Part I	Scope / to be taken care by		Remarks
		BHEL	Bidder	
a	Single point source	Yes		Free. At a distance of 500 M from site (Distance is only approximate, it may vary upto an extent depending on site condition)
b	Further distribution including all materials, Energy Meter, Protection devices and its service		Yes	
c	Duties and deposits including statutory clearances if applicable		Yes	
3.2.2	Electricity for the office, stores, canteen etc of the bidder			
a	Single point source	Yes		Free. At a distance of 500 M from site (Distance is only approximate, it may vary upto an extent depending on site condition)
b	Further distribution including all materials, Energy Meter, Protection devices and its service		Yes	
c	Duties and deposits including statutory clearances if applicable		Yes	
3.2.3	Electricity for living accommodation of the bidder's staff, engineers, supervisors etc		Yes	Agency has to make his own arrangement at his own cost.
a	Single point source		Yes	
b	Further distribution including all materials, Energy Meter, Protection devices and its service		Yes	
c	Duties and deposits including statutory clearances if applicable		Yes	
3.3	Water Supply			
3.3.1	For construction purposes:			
a	Making the water available at single point	Yes		Free
b	Further distribution as per the requirement of work including supply of materials and execution		Yes	

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: Facilities in the scope of Contractor/BHEL

(SCOPE MATRIX)

Sl. No	Description Part I	Scope / to be taken care by		Remarks
		BHEL	Bidder	
3.3.2	Water supply for bidder's office, stores, canteen etc.			
a	Making the water available at single point	Yes		Free
b	Further distribution as per the requirement of work including supply of materials and execution		Yes	
3.3.3	<u>Water supply for Living Purpose</u>			Contractor has to make their own arrangements
a	Making the water available at single point		Yes	
b	Further distribution as per the requirement of work including supply of materials and execution		Yes	
3.4	Lighting			
a	For construction work (supply of all the necessary materials) 1. At office/storage area 2. At the preassembly area 3. At the construction site /area		Yes	
b	For construction work (execution of the lighting work/ arrangements) 1. At office/storage area 2. At the preassembly area 3 At the construction site /area		Yes	
c	Providing the necessary consumables like bulbs, switches, etc during the course of project work		Yes	
d	Lighting for the living purposes of the bidder at the colony / quarters		Yes	
3.5	Communication Facilities for Site Operations of the Bidder			
a	Telephone, fax, internet, intranet, e-mail etc.		Yes	

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: Facilities in the scope of Contractor/BHEL

(SCOPE MATRIX)

Sl. No	Description Part I	Scope / to be taken care by		Remarks
		BHEL	Bidder	
3.6	Compressed Air wherever required for the work		Yes	
a	Supply of Compressor and all other equipments required for compressor & compressed air system including pipes, valves, storage systems etc		Yes	
b	Installation of above system and operation & maintenance of the same		Yes	
c	Supply of the all the consumables for the above system during the contract period		Yes	
3.7	Demobilization of all the above facilities		Yes	
3.8	Transportation			
a	For site personnel of the bidder		Yes	
b	For bidder's equipments and consumables (T&P, Consumables etc)		Yes	

Sl. No	Description Part II	Scope / to be taken care by		Remarks
		BHEL	Bidder	
	3.9 Erection Facilities			
3.9.1	Engineering works for construction:	Yes		
a	Providing the erection drawings for all the equipments covered under this scope	Yes		
b	Drawings for construction methods	Yes		
c	As-built drawings – where ever deviations observed and executed and also based on the decisions taken at site- example – routing of small bore pipes		Yes	In consultation with BHEL

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: Facilities in the scope of Contractor/BHEL

(SCOPE MATRIX)

Sl. No	Description Part II	Scope / to be taken care by		Remarks
		BHEL	Bidder	
	3.9 Erection Facilities			
d	Shipping lists etc for reference and planning the activities	Yes		
e	Preparation of site erection schedules and other input requirements		Yes	In consultation with BHEL
f	Review of performance and revision of site erection schedules in order to achieve the end dates and other commitments	Yes	Yes	In consultation with BHEL
g	Weekly erection schedules based on SL No. e		Yes	In consultation with BHEL
h	Daily erection / work plan based on SL No. g		Yes	In consultation with BHEL
i	<u>Periodic visit of the senior official of the bidder to site to review the progress so that works are completed as per schedule. It is suggested this review by the senior official of the bidder should be done once in every two months.</u>		Yes	
j	Preparation of preassembly bay/bed		Yes	
k	Arranging the materials required for preassembly		Yes	

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – IV: T&Ps and MMEs to be deployed by Contractor

List of Tool & Plants to be deployed by the contractor – The following Tools & Plants (T&P) shall be arranged by the Contractor within the quoted rate for execution of this contract:.

A: T & P

Major T&Ps				
SN	DESCRIPTION	CAPACITY (MINIMUM)	QUANTITY	REMARKS
1	Pick & Carry/hydra Crane	25 MT	4	Crane to be made available at site in consultation with BHEL Site management, BHEL decision is final and agency has to deploy the crane as per BHEL instructions till Site requirement.
Other T&Ps				
SN	DESCRIPTION	CAPACITY (MINIMUM)	MINIMUM QUANTITY	REMARKS
2	Trailer with Prime Mover	20 MT	2	
3	Truck	9 MT	1	
4	3-Phase Distribution Board with Complete Set Up for Drawl of Construction Power	As required	As required	
5	Power Cable for drawl of Construction Power	As required	As required	
6	Radiography/NDT Arrangement structural work	As required	As required	
7	Theodolite of Required Accuracy	To ensure verticality of structural columns	1	
8	Self Drilling Cum Tapping Machine for Screws	As required	As required	
09	Welding machine / Generator	As required	As required	
10	Radiography Film Viewer	As required	As required	

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – IV: T&Ps and MMEs to be deployed by Contractor

11	Baking Oven with thermostat and temperature gauge for welding electrodes	As required	01	
12	Holding Oven with thermostat and temperature gauge for welding electrodes	As required	04	
13	Portable Oven for welding electrodes	As required	As required	
14	Electric Winch	3 Ton Capacity	04	
15	Hand Winch	0.5 Ton Capacity	04	
16	Scaffolding Materials	Suitable for working at various heights	Adequate qty for parallel working in multiple work fronts.	
17	Profile making M/c	for aluminium sheet cladding work	As required	
18	Nibbling M/c		As required	
19	Shearing M/c		As required	
20	Portable Grinding M/c	As required	As required	
21	Portable Drilling M/c	As required	As required	
22	Gas cutting set	As required	As required	
23	Chain Pulley Blocks	Up to 15 MT Capacity	As required	
24	Fire retardant Tarpaulins	As required	As required	
25	Fire retardant Aluminium sheet	As required	As required	To cover up entire area above Fan equipment system
26	Wooden sleeper	As required	As required	To proper material handling at construction site
27	Fire Extinguisher	As required	As required	

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – IV: T&Ps and MMEs to be deployed by Contractor

B: MEASURING AND MONITORING DEVICES (MMD):

AS PER REQUIREMENT TO BE FINALIZED AT SITE, SHALL MEET THE REQUIREMENTS AS PER FIELD QUALITY PLAN AND OTHER ERECTION, TESTING RELATED ACTIVITIES.

NOTE:

- 1. All above T&Ps are to be deployed by contractor as and when required as per instruction of BHEL engineer. If works gets delayed due to non-availability of above T&Ps, BHEL reserves the right to deploy the same and recover the charges thereof from the contractor as per prevailing market rate/hiring rate/BHEL internal hiring rates, as the case may be, + Applicable overhead rates.**
2. Number of Major T&Ps listed above are fixed. All the other relevant clauses shall be read accordingly.
3. This above list of T&Ps (apart from Major T&Ps) is only indicative and neither exhaustive nor limiting. Quantities indicated above are only the minimum required. Contractor shall deploy all necessary T&P to meet the schedules & as prescribed by BHEL engineer and required for completion of work.
4. Necessary electrical / water / air connection required for operation of any of the tools & tackles shall be to Contractor's account.
5. Contractor has to submit the Calibration certificates of all the precision Equipement to BHEL. BHEL may ask for recalibration of the MMEs /precision equipments for ensuring quality of work. Contractor must reascertain/ recheck range and accuracy of each IMTE from BHEL Engineer well in advance before arranging calibration/ deployment.
6. Any T&Ps, Cranes, Slings, D-shackles and other lifting tackles, Trailers required for shifting of material from store to site shall be arranged by contractor over and above T&Ps/ crane provided by BHEL.
7. T&P (apart from Major T&Ps) and the mobilization shown in the above mentioned list is suggestive requirement. Mobilization schedule as instructed at site for all the required T&Ps, have to be adhered to. Numbers / time of requirement will be reviewed time to time at site and contractor will provide required T&P / equipments to ensure completion of entire work within schedule / target date of completion without any additional financial implication to BHEL. Vendor will give advance intimation & certification regarding capacity etc. prior to dispatch of heavy equipments. Also on completion of the respective activity, demobilization of T&P in total or in part can be done with the due approval of engineer in charge. Retaining of the T&Ps during the contract period will be mutually agreed in line with construction requirement.
8. In the event of need of change of type of any of T&Ps, approval shall be taken from BHEL Engineer in-charge prior to mobilization. The decision of Number of T&P required due to replacing the enlisted T&P as per above table, shall be taken after analyzing the production capacity and suitability of both the T&Ps.
9. Crane operators deployed by the contractor shall be tested by BHEL before they are allowed to operate the cranes.
10. The above list is only indicative (apart from major T&Ps) and all these T&Ps including major T&Ps may not be required for entire contract period but contractor shall ensure the availability of the T&Ps as per work requirement and T&P Deployment schedule. T&P Deployment schedule shall be finalized at site in consultation with BHEL Engineer based on the work fronts/work requirement. BHEL decision shall be final and binding regarding the T&P deployment schedule. Contractor shall mobilize / maintain the T&P's as per the deployment schedule notified time to time by BHEL Engineer.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – IV: T&Ps and MMEs to be deployed by Contractor

11. APR- Contractor has to deploy T&P, MMD, IMTE as per requirement of site and as decided by BHEL Engineer.
12. Any additional item (apart from Major T&Ps) required in addition to above mentioned T&P for proper execution of scope of work, contractor has to arrange such T&P within quoted rate on the instruction of BHEL in writing in a reasonable period within two weeks from the written instruction from BHEL.
13. T&Ps mentioned above shall be specifically deployed as per the requirement. However, as per work requirement and availability of T&Ps the inter use in Material Handling and Mechanical works may be permitted as per the instruction of the BHEL Engineer.
14. **If the work related to T & Ps mentioned above is completed then, BHEL can release that T & P during contract period / extended period if any. However, written permission shall be taken by contractor from BHEL construction Manager for releasing the T&P.**
15. The T&P deployment as specified in above table is only indicative, however the contractor has to ensure the availability of required T&P till completion of all the work under his scope in this tender.
16. For loading and transportation, all necessary T&P such as Trailers, Cranes, Winches, welding generators, slings, jacks, sleepers, rails etc., are to be arranged by the contractor.
17. All the T&Ps required for this scope of work, except the Tools & Plants provided by BHEL are to be arranged by the contractor with in the quoted rates.
18. All the tools and tackles/measuring instruments shall be duly tested/calibrated and valid certificate to that effect should be submitted to BHEL site in-charge before the start of work.
19. Any or part or all of the T & Ps of the contractor identified for the tendered package shall not be engaged for any works other than that of the works intended in this tender.
20. The contractor shall arrange crane operator, diesel, petrol and other consumables required for the tools and plants, equipment's etc. Preventive and routine maintenance of T&P are also to be arranged by the contractor at his cost without any delay. Required number of experienced mechanics and helpers for routine maintenance of the above cranes shall be provided by the contractor within his quoted rate.
21. For transportation, material handling, loading& unloading of all components / equipments, the contractor has to make his own arrangements at his own cost. BHEL will not provide any crane / T&Ps for unloading the above components. All necessary T&P such as, Trailers, Cranes Winches, Welding generators, Slings, Jacks, Sleepers, Rails etc. are to be arranged by the contractor.
22. All the T & P, lifting tackles including wire ropes, slings, shackles and electrically operated equipment shall be got approved by BHEL Engineer before they are actually put on use. Test certificates obtained from the statutory authority should be submitted before their usage.
23. All the T & P arranged by contractor including electrical connections wherein required shall be reliable / proven / tested with necessary test certificate.
24. All instruments, measuring tools etc. are to be calibrated periodically as per the requirement of BHEL and necessary calibration certificates are to be submitted to BHEL before use.
25. Crane operators deployed by the contractor shall be tested by BHEL before he is allowed to operate the cranes.
26. Also Refer BHEL T & Ps in chapter V of this booklet TCC. Other Relevant clauses shall be referred in Special Conditions of Contract (SCC) published in Volume IB of Book II.
27. The contractor shall submit the valid test certificate/calibration certificates for all the T&Ps before put into actual use at site. The certificates shall be renewed time to time as instructed by BHEL Engineer.
28. Crane operators deployed by the contractor shall have valid license for operation of cranes.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – IV: T&Ps and MMEs to be deployed by Contractor

29. Apart from above mentioned T&P, any additional item required for proper execution of scope of work, contractor has to arrange such T&P within quoted rate as instructed by BHEL Engineer. Deployment schedule of such T&Ps shall be maintained as per the instruction of BHEL Engineer.
30. T&P's mentioned above shall be specifically deploy as per the respective works. However, as per work requirement and availability of T&Ps the inter use in Material Handling and Mechanical works may be permitted as per the instruction of the BHEL Engineer.
31. Any of the T&Ps deployed by the contractor, will be released from site during contract period / extended period only after completion of work for which the particular T&Ps was envisaged. The written permission shall be taken by contractor from BHEL Construction Manager for releasing the T&Ps.
32. The loading, unloading and transportation of contractors T&Ps shall be in the scope of contractor. All necessary items such as Trailers, Cranes, Winches, welding generators, slings, jacks, sleepers, rails etc., are to be arranged by the contractor at his own cost.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – V: T&Ps and MMEs to be Provided by BHEL on Sharing basis

List of T&P to be provided by BHEL Free of Hire Charges on sharing basis:

SI No	Description & Capacity of T&P	Quantity	Remarks
1	Cranes		All cranes (except Contractor scope) required for mentioned work will be arranged by BHEL as per requirement.
2	Air Leak Test equipment with all auxiliaries.	01 SET	For leakage test of Ducts.

1. The cranes may be BHEL owned or may be obtained on hiring basis including operating and maintenance crew.
2. Operator and O&M for BHEL owned crane will be provided by BHEL.
3. Operator and O&M for hired crane will be provided by the hiring agency.
4. Contractor shall provide the fuel for BHEL provided cranes (Hired/owned) for his use.
5. Contractor shall provide necessary manpower assistance for initial and final assembly & dismantling and for subsequent operations of boom extension and reduction during execution of work. Contractor shall also make necessary arrangements like laying of special sleeper beds and steel plates (all arranged by contractor) for movement and operation of the crane.

NOTE: Cranes provided by BHEL will be on sharing basis with other agencies / contractors of BHEL. The allocation of cranes shall be the discretion of BHEL engineer, which shall be binding on the contractor. Cranes will be deployed at appropriate time as decided by BHEL for suitable duration and intended purpose. Augmentation of BHEL T & P under special circumstances shall be discretion of BHEL.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – VI: Time Schedule

6.1 TIME SCHEDULE & MOBILIZATION

6.1.1 After receipt of fax/Email LOI, Contractor shall discuss with Project Manager / Construction Manager regarding initial mobilization. Contractor shall mobilize necessary resources **within 2 weeks of issue of** fax/Email letter of intent or as per the directive of Project Manager / Construction Manager. Such resources shall be progressively augmented to match the schedule of milestones and commissioning.

6.1.2 MOBILIZATION FOR ERECTION, TESTING, ASSISTANCE FOR COMMISSIONING ETC.

The activities for erection, testing etc. shall be started as per directions of Construction Manager of BHEL. Contractor shall mobilize further resources (in addition to those required for activities under clause no. 6.1.1) as per requirement to commence the work of erection, testing etc. of boiler and auxiliaries and progressively augment the resources to match schedule of the project.

6.1.3 COMMENCEMENT OF CONTRACT PERIOD AND TENTATIVE SCHEDULE

Erection/placement on it's designated foundation / location, of the first major permanent equipment / component / column covered in the scope of these specifications shall be recognized as "start of contract period" as certified by BHEL. Smaller items like packer plates, shims, anchors, inserts etc. will not be considered as start of contract period.

The Contractor has to subsequently augment his resources in such a manner to meet the BHEL / TSGENCO requirement.

Contractor shall arrange & augment all necessary resources from time to time on the instructions of BHEL.

6.1.4 CONTRACT PERIOD

The contract period for completion of entire work under scope shall be **9 (Nine) months** for all 4 units.

The period from the commencement of preparatory work for erection till the actual "start of contract period" shall not be reckoned for the above purpose.

Sub-contractor will be required to work on 24 hour (round the clock) basis.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – VII: TERMS OF PAYMENT

7.1 Terms of payment

The progressive payment for erection, testing and commissioning on accepted price of contract value will be released as per the break up given hereinafter:

7.1.1 Progressive Payment against monthly running bills will be made upto 85% of the value of the erected Pro-rata as per CI no 7.1.1.1 to 7.1.1.7 of the following table.

Sl no	Contract (Main Package) Identification ---->	Structure	Non Pressure Parts	Pressure Parts	Insulation
	Rate schedule Identification ----->	Structure	Non Pressure Parts (Ducts/dampers, etc)	Pressure Parts	1. Iron Components 2. Wool mattresses - 3. Aluminum/Cladding sheeting -
	Pro Rata Payments (85%)				
7.1.1.1	On Pre-assembly wherever applicable (if not applicable, this portion shall be clubbed with placement in position)	20%	20%	20%	--
7.1.1.2	Placement in position	20%	20%	10%	50%
7.1.1.3	Alignment	20%	20%	15%	15%
7.1.1.4	Welding/ Bolting/ Fixing	20%	20%	15%	20%

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – VII: TERMS OF PAYMENT

7.1.1.5	Completion of Non - Destructive examination & Stress relieving/ Heat treatment (if not applicable, then this portion to be paid along with welding)	5%	5%		--
7.1.1.6	Hangers & Supports etc wherever necessary as per drg	--	--	25	--
7.1.1.7	Hydraulic Test or Pneumatic Test	--	--	--	--
	Total for Pro Rata Payments (Total 85%)	85%	85%	85%	85%

7.1.2 Further 15 % payment on Pro-Rata basis common to all PGs shall be released on achievement of the following stage / milestones events for the tonnage erected.

7.1.2	Stage/ Milestone Payments (15%)	% Payment
7.1.2.1	Completion of air & gas tightness test for Ducts	5 %
7.1.2.2	Painting	2%
7.1.2.3	Area cleaning, temporary structures cutting/removal and return of scrap	2%
7.1.2.4	Punch List points/pending points liquidation	2%
7.1.2.5	Material Reconciliation	2%
7.1.2.6	Completion of Contractual Obligation	2%
	Total for Stage /Milestone Payments (15%)	15%

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – VIII: Taxes and Duties

08 TAXES, DUTIES, LEVIES (Rev 14 dated 09/10/2020)

1. All taxes excluding GST, GST Cess & BOCW Cess but including, Royalties, fees, license, deposits, commission, any State or Central Levy and other charges whatsoever, if any, shall be borne by you and shall not be payable extra.
2. Any increase of the taxes excluding GST, GST Cess & BOCW Cess, at any stage during execution including extension of the contract shall have to be borne by the contractor. Quoted/ accepted rates/ price shall be inclusive of all such requirements. Please note that since GST on output will be paid by BHEL separately as enumerated below, your quoted rates/ price should be after considering the Input Credit under GST law at your end.
3. **GST** :
The successful bidder shall furnish proof of GST registration .GST along with Cess (as applicable) legally leviable & payable by the successful bidder as per GST Law, shall be paid by BHEL. Hence Bidder shall not include GST along with Cess (as applicable) in their quoted price.
4. GST charged in the Tax Invoice/Debit note by the contractor shall be released separately to the contractor only after contractor files the outward supply details in GSTR-1 on GSTN portal and input tax credit of such invoice is matched with corresponding details of outward supply of the contractor and has paid the GST at the time of filing the monthly return
5. E-invoicing under GST has been implemented with effect from 1st October 2020 for all the taxable persons having turnover more than the threshold limit in any preceding financial year from 2017-18 onwards. Therefore, for all the taxable persons falling under the purview of E-invoice, it is mandatory to mention a valid unique Invoice Reference No. (IRN) and QR code as generated from E-Invoicing portal of the Government for the purpose of issuing a valid Tax Invoice. Only an E-invoice issued in the manner prescribed under rule 48(4) of CGST Rules shall be treated as valid invoice for reimbursement of GST amount.
If the successful Bidder is not falling under the purview of E-Invoicing then he has to submit a declaration in that respect along with relevant financial statements.
6. Bidder shall note that the GST Tax Invoice complying with GST Invoice Rules (Section 31 of GST Act & Rules referred there under) wherein the 'Bill To' details will as below:
BHEL GSTN – As per **Annexure -1**
NAME -- Bharat Heavy Electricals Limited
ADDRESS – Site address

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – VIII: Taxes and Duties

7. Bidder to immediately intimate on the day of removal of Goods (in case of any supply of goods) to BHEL along with all relevant details and a scanned copy of Tax Invoice to below email ids to enable BHEL to meet its GST related compliances :-
Email id ---- to be intimated later on.
In case of delay in submission of the abovementioned documents on the date of dispatch, BHEL may incur penalty /interest for not adhering to Invoicing Rules under GST Law. The same will be liable to be recovered from the successful bidder, if such delay is not attributable to BHEL.
8. In case of raising any Supplementary Tax Invoice (Debit / Credit Note) Bidder shall issue the same containing all the details as referred to in Section 34 read with Rule 53.
9. Bidder shall note that in case GST credit is delayed/ denied to BHEL due to delayed / non receipt of goods and /or tax invoice or expiry of the timeline prescribed in GST Law for availing such ITC, or any other reasons not attributable to BHEL, GST amount shall be recoverable from the vendor along with interest levied / leviable on BHEL, as the case may be.
10. Bidder shall upload the Invoices raised on BHEL in GSTR-1 within the prescribed time as given in the GST Act. Bidder shall note that in case of delay in declaring such invoice in your return and GST credit availed by BHEL is denied or reversed subsequently as per GST Law, GST amount paid by BHEL towards such ITC reversal as per GST law shall be recoverable from the bidder along with interest levied / leviable on BHEL.
11. Way Bill: Successful Bidder to arrange for way bill / e-waybill for any transfer of goods for the execution of the contract.

The Bidder has to make their own arrangement at their cost for completing the formalities, if required, with Issuing Authorities, for bringing materials, plants & machinery at site for execution of the works under this contract, Road Permit/ Way Bill, if required, shall be arranged by the contractor and BHEL will not supply any Road Permit/ Way Bill for this purpose.

12. **New taxes and duties:-**Any New taxes & duties, if imposed subsequent to due date of offer submission as per NIT & TCN, by statutory authority during contract period including extension, if the same is not attributable to you, shall be reimbursed by BHEL on production of relevant supporting document to the satisfaction of BHEL. However, you shall obtain prior approval from BHEL before depositing new taxes and duties. Benefits and/or abolition of all existing taxes must be passed on to BHEL against new Taxes, if any, proposed to be introduced at a later date.
In case any new tax/levy/duty etc. becomes applicable after the date of bidder's offer but before opening of the price bid, the bidder must convey its impact on his price duly substantiated by documentary evidence in support of the same before opening of the

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – VIII: Taxes and Duties

price bids. Claim for any such impact after opening the price bid will not be considered by BHEL for reimbursement of tax or reassessment of offer.

13. For transportation work, bidder shall declare in his quotation whether he is registered under GST, if yes, whether he intends to claim GST on forward charge basis. In absence of this declaration, BHEL will proceed further with the assumption that bidder intends not to claim GST on forward charge basis. However, in case of GST registered transporter, the amount to the extent of goods and service tax will be retained till BHEL avails the credit of GST. Further, transporter shall issue tax invoice which inter alia includes gross weight of the consignment, name of the consigner and the consignee, registration number of vehicle in which the goods are transported, details of goods transported, details of place of origin and destination, GSTIN of the person liable for paying tax whether as consigner, consignee or goods transport agency, and also containing other information as mentioned under rule 46.
14. **TDS under Income Tax shall be deducted at prevailing rates on gross invoice value from the running bills unless exemption certificate from the appropriate authority/ authorities is furnished.**
15. **TDS under GST shall be deducted at prevailing rates on applicable value from the running bills.**
16. **TCS under Income Tax 1961 has been implemented with effect from 1st October 2020 for every seller having turnover more than threshold limit during financial year immediately preceding financial year in which the sale of goods is carried out, who receives any amount as consideration for sale of any goods of the value or aggregate of such value exceeding threshold limit other than export of goods or who is already covered under other provision of section 206C, collect from the buyer, TCS as per applicable rates of the sale consideration exceeding threshold limit subject to following conditions**
 - i. Buyer shall be as per clause (a) of section 206C- (1H)
 - ii. Seller shall be as per clause (b) of section 206C- (1H)
 - iii. No TCS is to be collected, if the seller is liable to collect TCS under other provision of section 206C or the buyer is liable to deduct TDS under any provision of the Act and has deducted such amount.

If Successful Bidder is falling under the purview of TCS then he has to submit a declaration in that respect along with relevant financial statements before the start of work or if bidder is falling under preview of TCS during the work in

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – VIII: Taxes and Duties

progress then bidder is compulsorily required to submit relevant financial statement in the beginning of the respective FY.

For TCS claim, vendor has to submit relevant documents required as per Income Tax Act.

17. Refer Annexure – 2 for BOCW Act & Cess Act.

ANNEXURE-1

State wise GSTIN no.s of BHEL

Sl. No	Projects under state	GSTIN
1	Andhra Pradesh	37AAACB4146P7Z8
2	Bihar	10AAACB4146P1ZU
3	Chhattisgarh	22AAACB4146P1ZP
4	Gujarat	24AAACB4146P1ZL
5	Jharkhand	20AAACB4146P5ZP
6	Madhya Pradesh	23AAACB4146P1ZN
7	Maharashtra	27AAACB4146P1ZF
8	Orissa	21AAACB4146P1ZR
9	Telangana	36AAACB4146P1ZG

ANNEXURE-2

BOCW Act & Cess Act

Bidder may please note that the sub-contractor/bidder of BHEL engaging building or construction worker in connection with building or other construction work, are required to follow the procedures enumerated below:

1. It shall be the sole responsibility of the contractor as employer to ensure compliance of all the statutory obligations under the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 and the Building and other Construction Workers' Welfare Cess Act, 1996 and the rules made thereunder.
2. It shall be sole responsibility of the contractor engaging Building Workers in connection with the building or other construction works in the capacity of employer to apply and obtain registration certificate specifying the scope of work under the relevant provisions of the Building and Other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 from the appropriate Authorities.
3. It shall be responsibility of the contractor to furnish a copy of such Registration Certificate within a period of one month from the date of commencement of Work.

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4. It is responsibility of the contractor to register under the Building and other Construction Workers' Welfare Cess Act, 1996 and deposit the required Cess for the purposes of the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 at such rate as the Central Government may , by notification in the Official Gazette, from time to time specify. However, before registering and deposit of Cess under the Building and other Construction Workers' Welfare Cess Act, 1996, the contractor will seek written prior approval from the Construction Manager.
5. It shall be sole responsibility of the contractor as employer to get registered every Building Worker, who is between the age of 18 to 60 years of age and who has been engaged in any building or other construction work for not less than ninety days during the preceding twelve months as Beneficiary under the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996.
6. It shall be sole responsibility of the contractor as employer to maintain all the registers, records, notices and submit returns under the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 and the Building and other Construction Workers' Welfare Cess Act, 1996 and the rules made thereunder.
7. It shall be sole responsibility of the contractor as employer to provide notice of poisoning or occupation notifiable diseases, to report of accident and dangerous occurrences to the concerned authorities under the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 and the rules made thereunder and to make payment of all statutory payments & compensation under the Employees' Compensation Act, 1923.
8. It shall be the responsibility of the sub-contractor as employer to make payment/deposit of applicable cess amount on the extent of work involving building or construction workers engaged by the sub-contractor within a period of one month from the receipt of payment. It shall also be responsibility of the Contractor to furnish BHEL on monthly basis, Receipts/ Challans towards Deposit of the Cess under the Building and other Construction Workers' Welfare Cess Act, 1996 and the rules made thereunder along with following statistics :
 - (i) Number of Building Workers employed during preceding one month.
 - (ii) Number of Building workers registered as Beneficiary during preceding one month.
 - (iii) Disbursement of Wages made to the Building Workers for preceding wage month.
 - (iv) Remittance of Contribution of Beneficiaries made during the preceding month
9. BHEL shall reimburse the contractor the Cess amount deposited for the purposes of the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 under the Building and other Construction Workers' Welfare Cess Act, 1996 and the rules made thereunder. However, BHEL shall not reimburse the Fee paid

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towards the registration of establishment, fees paid towards registration of Beneficiaries and Contribution of Beneficiaries remitted.

10. It shall be responsibility of the Building Worker engaged by the Contractor and registered as a beneficiary under the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 to contribute to the Fund at such rate per mensem as may be specified by the State government by notification in the Official Gazette. Where such beneficiary authorizes the contractor being his employer to deduct his contribution from his monthly wages and to remit the same, the contractor shall remit such contribution to the Building and other construction Workers' Welfare Board in such manner as may be directed by the Board , within the fifteen days from such deduction.
11. Bidders may please note that though the quoted price is exclusive of BOCW (which will be reimbursed by BHEL as per sub-clause 9 above) , however, If at any point of time during the contract period, non-compliance of the provisions of the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 and the Building and other Construction Workers' Welfare Cess Act, 1996 and the rules made thereunder is observed, BHEL reserves the right to deduct the applicable cess (1%) on the contract value and penalty (if any, imposed by Cess Authorities) from the payables on account of non-compliance.
12. The contractor shall declare to undertake any liability or claim arising out of employment of building workers and shall indemnify BHEL from all consequences / liabilities / penalties in case of non-compliance of the provisions of the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 and the Building and other Construction Workers' Welfare Cess Act, 1996 and the rules made thereunder.

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Bill of Quantity: Summary of Weight of BOQ under the Scope:

Summary of Weight Details for all the 4 units

S No	Area	Weight (In MT)
1	Structure	1156.31
2	Pressure Parts	34.67
3	Non Pressure Parts	1000.53
4	Insulation- Iron Part	5.67
5	Insulation - Cladding sheet	10.02
6	Insulation - Wool	75.09
	Total	2282.30

CUST NOs	NS	PG	MA	DU	Category	MARK NO./DESCRIPTION	QUANTITY	UNIT	WEIGHT (MT).
2485	1	08	501	001	Pressure Parts	VERTICAL BUCKSTAY BEAM	2.000	NO	0.474
2485	1	08	501	002	Pressure Parts	ANGLE	4.000	NO	0.032
2485	1	08	501	003	Pressure Parts	ANGLE	8.000	NO	0.035
2485	1	08	501	004	Pressure Parts	HSS BOLT & NUT M 24X 90	24.000	NO	0.014
2485	1	08	501	005	Pressure Parts	WASHER M 24 A (HSFG WASHER)	24.000	NO	0.001
2485	1	08	501	006	Pressure Parts	PLATE 20	1.000	NO	1.884
2485	1	08	501	007	Pressure Parts	ISMC 150	24.000	NO	2.016

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2485	1	08	501	008	Pressure Parts	PLATE 12	14.000	NO	0.435
2485	1	08	501	009	Pressure Parts	RETAINER	50.000	NO	0.058
2485	1	08	501	010	Pressure Parts	PLATE 25	3.000	NO	1.766
2485	1	08	501	011	Pressure Parts	PLATE 16	2.000	NO	1.256
2485	1	11	618	001	Pressure Parts	LOOSE TUBE D44.5X6.8	50.000	NO	0.221
2485	1	11	618	002	Pressure Parts	BENT TUBE D44.5X6.8	42.000	NO	0.287
2485	1	11	618	003	Pressure Parts	SHAPED PLATE 6 THK	180.000	NO	0.035
2485	1	36	394	001	Structure	WELDED ANGLE-01	8.000	NO	6.059
2485	1	36	394	002	Structure	WELDED ANGLE-02	8.000	NO	8.036
2485	1	36	394	003	Structure	WELDED ANGLE-03	8.000	NO	6.474
2485	1	36	394	004	Structure	WELDED ANGLE-04	8.000	NO	5.274
2485	1	36	394	005	Structure	WELDED ANGLE-05	8.000	NO	2.277
2485	1	36	394	006	Structure	WELDED ANGLE-06	8.000	NO	3.049
2485	1	36	394	007	Structure	WELDED ANGLE-07	8.000	NO	3.757
2485	1	36	394	008	Structure	WELDED ANGLE-08	4.000	NO	2.554
2485	1	36	394	009	Structure	WELDED ANGLE-09	4.000	NO	3.378
2485	1	36	394	010	Structure	WELDED ANGLE-10	4.000	NO	2.722
2485	1	36	394	011	Structure	WELDED ANGLE-11	4.000	NO	3.080
2485	1	36	394	012	Structure	WELDED ANGLE-12	4.000	NO	2.023
2485	1	36	394	013	Structure	WELDED ANGLE-13	4.000	NO	1.595
2485	1	36	394	014	Structure	WELDED ANGLE-14	4.000	NO	1.967
2485	1	36	394	015	Structure	PLATE 16	8.000	NO	2.942
2485	1	36	394	016	Structure	PLATE 25	4.000	NO	5.313

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2485	1	36	394	017	Structure	PLATE 25	12.000	NO	6.594
2485	1	36	394	018	Structure	PLATE 25	4.000	NO	0.758
2485	1	36	394	019	Structure	PLATE 32	2.000	NO	1.527
2485	1	36	394	020	Structure	PLATE 16	2.000	NO	0.452
2485	1	36	394	021	Structure	PLATE 12	2.000	NO	0.678
2485	1	36	395	001	Structure	FB395-102 WB350X350-25/16	1.000	NO	0.999
2485	1	36	395	002	Structure	FB395-103 WB500X250-25/16	2.000	NO	0.808
2485	1	36	395	003	Structure	FB395-104 ISMB300	2.000	NO	0.318
2485	1	36	395	004	Structure	FB395-105 WB400X300-32/20	6.000	NO	6.779
2485	1	36	395	005	Structure	FB395-106 ISMB350	2.000	NO	0.579
2485	1	36	395	006	Structure	FB395-108 WB500X250-25/16	1.000	NO	0.871
2485	1	36	395	007	Structure	FB395-110 WB500X250-25/16	1.000	NO	0.895
2485	1	36	395	008	Structure	FB395-111 WB400X300-32/20	8.000	NO	11.544
2485	1	36	395	009	Structure	FB395-112 WB600X300-25/16	2.000	NO	2.600
2485	1	36	395	010	Structure	FB395-113 ISMB350	2.000	NO	0.587
2485	1	36	395	011	Structure	FB395-114 WB400X250-20/16	1.000	NO	0.539
2485	1	36	395	012	Structure	FB395-115 WB400X250-20/16	1.000	NO	0.456
2485	1	36	395	013	Structure	FB395-116 WB350X350-25/16	1.000	NO	0.999
2485	1	36	395	014	Structure	FB395-117 WB500X250-25/16	1.000	NO	0.895

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2485	1	36	395	015	Structure	FB395-118 WB500X250-25/16	1.000	NO	0.871
2485	1	36	395	016	Structure	FH6L:395-101 WBOX-300X180-32/32	1.000	NO	2.222
2485	1	36	395	017	Structure	FH6L:395-102 WBOX-300X180-32/32	1.000	NO	1.682
2485	1	36	395	018	Structure	FH6R:395-101 WBOX-300X180-32/32	1.000	NO	2.222
2485	1	36	395	019	Structure	FH6R:395-102 WBOX-300X180-32/32	1.000	NO	1.682
2485	1	36	395	020	Structure	MR395-101 WB450X190-16/10	1.000	NO	0.133
2485	1	36	395	021	Structure	MR395-102 WB450X190-16/10	1.000	NO	0.133
2485	1	36	395	022	Structure	MR395-103 WB450X190-16/10	1.000	NO	0.320
2485	1	36	395	023	Structure	MR395-104 WB450X190-16/10	1.000	NO	0.320
2485	1	36	395	024	Structure	MR395-105 WB450X190-16/10	1.000	NO	0.377
2485	1	36	395	025	Structure	MR395-106 WB450X190-16/10	1.000	NO	0.377
2485	1	36	395	026	Structure	MR395-107 WB450X190-16/10	1.000	NO	0.442
2485	1	36	395	027	Structure	MR395-108 WB450X190-16/10	1.000	NO	0.442
2485	1	36	395	028	Structure	MR395-109 WB450X190-16/10	1.000	NO	0.672
2485	1	36	395	029	Structure	MR395-110 WB450X190-16/10	1.000	NO	0.672
2485	1	36	395	030	Structure	MR395-111 WB450X190-16/10	1.000	NO	0.096

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2485	1	36	395	031	Structure	MR395-112 WB450X190-16/10	1.000	NO	0.096
2485	1	36	395	032	Structure	P395-101 PLT10*280	4.000	NO	0.885
2485	1	36	395	033	Structure	P395-102 PLT12*162	4.000	NO	0.614
2485	1	36	395	034	Structure	VB395-101 WBOX200X200-16/16	2.000	NO	1.258
2485	1	36	395	035	Structure	VB395-102 WBOX200X200-16/16	2.000	NO	1.186
2485	1	36	395	036	Structure	VB395-103 WBOX200X200-16/16	2.000	NO	1.262
2485	1	36	395	037	Structure	VB395-104 WBOX200X200-16/16	2.000	NO	1.388
2485	1	36	395	038	Structure	VB395-105 WBOX200X200-16/16	2.000	NO	1.071
2485	1	36	395	039	Structure	VB395-106 WBOX200X200-16/16	2.000	NO	0.901
2485	1	36	395	040	Structure	VB395-107 WBOX200X200-16/16	2.000	NO	1.035
2485	1	36	395	041	Structure	VB395-108 WBOX200X200-16/16	2.000	NO	0.785
2485	1	36	395	042	Structure	VB395-109 WBOX200X200-16/16	2.000	NO	0.813
2485	1	36	814	001	Structure	FLOOR GRILL 25 X 450X 995	75.000	NO	1.290
2485	1	36	814	002	Structure	FLOOR GRILL 25 X 920X 995	85.000	NO	2.854
2485	1	36	814	003	Structure	FLOOR GRILL 25 X 1050 X 995	120.000	NO	4.568
2485	1	36	814	004	Structure	FLOOR GRILL 25 X 1150 X 995	168.000	NO	6.978
2485	1	36	814	005	Structure	FLOOR GRILL 25 X 1300 X 995	90.000	NO	4.201
2485	1	36	814	006	Structure	GUARD PLATE 5	890.000	NO	6.987

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2485	1	36	814	007	Structure	SH.3.15	60.000	NO	0.037
2485	1	36	814	008	Structure	EFFG 25 X 6000 X 995	10.000	NO	2.276
2485	1	36	850	001	Structure	HANDRAIL POST FOR PLATFORM	675.000	NO	2.456
2485	1	36	850	002	Structure	ERW TUBE DIA. 42.4X3.2	675.000	NO	3.139
2485	1	36	850	003	Structure	HANDRAIL POST FOR STAIR	50.000	NO	0.185
2485	1	36	850	004	Structure	ERW TUBE DIA 42.4X3.2	50.000	NO	0.233
2485	1	36	850	005	Structure	90 BEND TUBE DIA 42.4X3.2	526.000	NO	0.745
2485	1	36	850	006	Structure	135DEG BENDTUBE D42.4X3.2	150.000	NO	0.153
2485	1	36	850	007	Structure	135DEG BENDTUBE D42.4X3.2	100.000	NO	0.118
2485	1	36	850	008	Structure	""C"" BEND TUBE" D42.4X3.2	10.000	NO	0.017
2485	1	36	850	009	Structure	""C"" BEND TUBE" D42.4X3.2	10.000	NO	0.031
2485	1	36	850	010	Structure	SPL.BEND TUBE D42.4X3.2	10.000	NO	0.024
2485	1	36	850	011	Structure	ERW TUBE DIA 42.4X3.2	4,106.000	M	12.729
2485	1	36	850	012	Structure	ISA 65X65X6	30.000	M	0.174
2485	1	36	993	001	Structure	ISMB 125X70	10.000	NO	0.804
2485	1	36	993	002	Structure	ISMB 150X75	10.000	NO	0.900
2485	1	36	993	003	Structure	ISMB 200X100	10.000	NO	1.524
2485	1	36	993	004	Structure	UB 254X146	6.000	NO	1.332
2485	1	36	993	005	Structure	UB 305X166	4.000	NO	1.106
2485	1	36	993	006	Structure	ISMB 350X140	8.000	NO	2.515
2485	1	36	993	007	Structure	UB 406X178	6.000	NO	2.164
2485	1	36	993	008	Structure	NPB 450X190	8.000	NO	3.725
2485	1	36	993	009	Structure	NPB 500X200	4.000	NO	2.177
2485	1	36	993	010	Structure	NPB 600X220	6.000	NO	4.406

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2485	1	36	993	011	Structure	ISMC 200X75	10.000	NO	1.338
2485	1	36	993	012	Structure	ISMC 250X82	5.000	NO	1.026
2485	1	36	993	013	Structure	ISMC 300X90	5.000	NO	1.089
2485	1	36	993	014	Structure	ISA 65X65X6	8.000	NO	0.278
2485	1	36	993	015	Structure	ISA 80X80X8	5.000	NO	0.288
2485	1	36	993	016	Structure	ISA 100X100X10	8.000	NO	0.715
2485	1	36	993	017	Structure	PLATE 10	5.000	NO	2.453
2485	1	36	993	018	Structure	PLATE 25	4.000	NO	2.944
2485	1	48	342	001	Non Pressure Parts	DUCT WALL	2.000	NO	0.565
2485	1	48	342	002	Non Pressure Parts	DUCT WALL	2.000	NO	0.564
2485	1	48	342	003	Non Pressure Parts	DUCT WALL	4.000	NO	0.635
2485	1	48	342	004	Non Pressure Parts	TRUSS	2.000	NO	0.071
2485	1	48	342	005	Non Pressure Parts	DUCTWALL	2.000	NO	0.289
2485	1	48	342	006	Non Pressure Parts	DUCTWALL	2.000	NO	0.289
2485	1	48	342	007	Non Pressure Parts	DUCTWALL	2.000	NO	0.540

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2485	1	48	342	008	Non Pressure Parts	DUCTWALL	2.000	NO	0.540
2485	1	48	342	009	Non Pressure Parts	GUSSET PLATE	4.000	NO	0.026
2485	1	48	342	010	Non Pressure Parts	TRUSS	4.000	NO	0.141
2485	1	48	342	011	Non Pressure Parts	TRUSS	2.000	NO	0.071
2485	1	48	342	012	Non Pressure Parts	DUCTWALL	4.000	NO	0.135
2485	1	48	342	013	Non Pressure Parts	DUCTWALL	4.000	NO	0.075
2485	1	48	342	014	Non Pressure Parts	DUCT WALL	2.000	NO	2.401
2485	1	48	342	015	Non Pressure Parts	DUCTWALL	2.000	NO	2.344
2485	1	48	345	001	Non Pressure Parts	RESTRAINT	4.000	NO	2.309
2485	1	48	345	002	Non Pressure Parts	FAB-BEAM	4.000	NO	3.928

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2485	1	48	345	003	Non Pressure Parts	PLT 16;386x350	4.000	NO	0.068
2485	1	48	345	004	Non Pressure Parts	STOPPER	8.000	NO	0.051
2485	1	48	345	005	Non Pressure Parts	HANGER ASSEMBLY	4.000	NO	0.580
2485	1	48	352	001	Non Pressure Parts	STRAIGHT DUCT WALL	2.000	NO	0.601
2485	1	48	352	002	Non Pressure Parts	STRAIGHT DUCT WALL	2.000	NO	0.601
2485	1	48	352	003	Non Pressure Parts	STRAIGHT DUCT WALL	4.000	NO	0.453
2485	1	48	352	004	Non Pressure Parts	TRUSS	1.000	NO	0.023
2485	1	48	352	005	Non Pressure Parts	TRUSS	2.000	NO	0.087
2485	1	48	352	006	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	0.476
2485	1	48	352	007	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	0.476

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2485	1	48	352	008	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	1.209
2485	1	48	352	009	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	1.391
2485	1	48	352	010	Non Pressure Parts	TRUSS	1.000	NO	0.023
2485	1	48	352	011	Non Pressure Parts	TRUSS	2.000	NO	0.087
2485	1	48	352	012	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	0.476
2485	1	48	352	013	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	0.476
2485	1	48	352	014	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	1.391
2485	1	48	352	015	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	1.209
2485	1	48	352	016	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.793
2485	1	48	352	017	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.016

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2485	1	48	352	018	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.801
2485	1	48	352	019	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.205
2485	1	48	352	020	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.058
2485	1	48	352	021	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.353
2485	1	48	352	022	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.390
2485	1	48	352	023	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.174
2485	1	48	352	024	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	2.236
2485	1	48	352	025	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.647
2485	1	48	352	026	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.756
2485	1	48	352	027	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.181

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2485	1	48	352	028	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.181
2485	1	48	352	029	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.982
2485	1	48	352	030	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.839
2485	1	48	352	031	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.625
2485	1	48	352	032	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.077
2485	1	48	352	033	Non Pressure Parts	TRUSS	1.000	NO	0.042
2485	1	48	352	034	Non Pressure Parts	TRUSS	1.000	NO	0.033
2485	1	48	352	035	Non Pressure Parts	TRUSS	1.000	NO	0.033
2485	1	48	352	036	Non Pressure Parts	TRUSS	2.000	NO	0.066
2485	1	48	352	037	Non Pressure Parts	GUSSET PLATE	2.000	NO	0.014

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2485	1	48	352	038	Non Pressure Parts	GUSSET PLATE	1.000	NO	0.008
2485	1	48	352	039	Non Pressure Parts	TRUSS	1.000	NO	0.028
2485	1	48	352	040	Non Pressure Parts	TRUSS	1.000	NO	0.028
2485	1	48	352	041	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.793
2485	1	48	352	042	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.016
2485	1	48	352	043	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.801
2485	1	48	352	044	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.205
2485	1	48	352	045	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.058
2485	1	48	352	046	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.353
2485	1	48	352	047	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.390

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2485	1	48	352	048	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.174
2485	1	48	352	049	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	2.237
2485	1	48	352	050	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.647
2485	1	48	352	051	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.756
2485	1	48	352	052	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.181
2485	1	48	352	053	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.181
2485	1	48	352	054	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.625
2485	1	48	352	055	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.982
2485	1	48	352	056	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.839
2485	1	48	352	057	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.077

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2485	1	48	352	058	Non Pressure Parts	GUSSET PLATE	2.000	NO	0.014
2485	1	48	352	059	Non Pressure Parts	GUSSET PLATE	1.000	NO	0.008
2485	1	48	352	060	Non Pressure Parts	TRUSS	1.000	NO	0.033
2485	1	48	352	061	Non Pressure Parts	TRUSS	1.000	NO	0.033
2485	1	48	352	062	Non Pressure Parts	TRUSS	2.000	NO	0.066
2485	1	48	352	063	Non Pressure Parts	TRUSS	1.000	NO	0.042
2485	1	48	352	064	Non Pressure Parts	TRUSS	1.000	NO	0.028
2485	1	48	352	065	Non Pressure Parts	TRUSS	1.000	NO	0.028
2485	1	48	352	066	Non Pressure Parts	STRAIGHT DUCT WALL	4.000	NO	0.325
2485	1	48	352	067	Non Pressure Parts	STRAIGHT DUCT WALL	2.000	NO	0.112

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2485	1	48	352	068	Non Pressure Parts	STRAIGHT DUCT WALL	2.000	NO	0.112
2485	1	48	352	069	Non Pressure Parts	STRAIGHT DUCT WALL	2.000	NO	2.349
2485	1	48	352	070	Non Pressure Parts	STRAIGHT DUCT WALL	2.000	NO	2.438
2485	1	48	352	071	Non Pressure Parts	BLANKING PLATE	2.000	NO	3.278
2485	1	48	355	001	Non Pressure Parts	BEAM-1	2.000	NO	0.056
2485	1	48	355	002	Non Pressure Parts	BEAM-2	4.000	NO	0.943
2485	1	48	355	003	Non Pressure Parts	FAB BOX-1	4.000	NO	2.368
2485	1	48	355	004	Non Pressure Parts	FAB BOX-2	4.000	NO	2.069
2485	1	48	355	005	Non Pressure Parts	ISMB200;1107	2.000	NO	0.056
2485	1	48	355	006	Non Pressure Parts	ISMB200;225	2.000	NO	0.011

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2485	1	48	355	007	Non Pressure Parts	ISMB200;594	2.000	NO	0.030
2485	1	48	355	008	Non Pressure Parts	ISMB200;794	2.000	NO	0.040
2485	1	48	355	009	Non Pressure Parts	BEAM-3	4.000	NO	2.273
2485	1	48	355	010	Non Pressure Parts	BEAM-4	2.000	NO	1.175
2485	1	48	355	011	Non Pressure Parts	PLT 16;300x200	4.000	NO	0.030
2485	1	48	355	012	Non Pressure Parts	PLT 16;492x400	4.000	NO	0.099
2485	1	48	355	013	Non Pressure Parts	PLT 16;436x175	4.000	NO	0.038
2485	1	48	355	014	Non Pressure Parts	PLT 16;400x240	2.000	NO	0.024
2485	1	48	355	015	Non Pressure Parts	RESTRAINT-1	1.000	NO	0.020
2485	1	48	355	016	Non Pressure Parts	RESTRAINT-2	1.000	NO	0.020

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2485	1	48	355	017	Non Pressure Parts	RESTRAINT-3	2.000	NO	0.058
2485	1	48	355	018	Non Pressure Parts	STOPPER	8.000	NO	0.033
2485	1	48	355	019	Non Pressure Parts	LUG PLATE-1	17.000	NO	0.034
2485	1	48	355	020	Non Pressure Parts	LUG PLATE-2	7.000	NO	0.013
2485	1	48	355	021	Non Pressure Parts	ISMB200;5314	2.000	NO	0.270
2485	1	48	362	001	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	0.170
2485	1	48	362	002	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	0.171
2485	1	48	362	003	Non Pressure Parts	TRUSS	2.000	NO	0.058
2485	1	48	362	004	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	1.626
2485	1	48	362	005	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	1.618

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2485	1	48	362	006	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	0.170
2485	1	48	362	007	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	0.171
2485	1	48	362	008	Non Pressure Parts	TRUSS	2.000	NO	0.058
2485	1	48	362	009	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	1.626
2485	1	48	362	010	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	1.618
2485	1	48	362	011	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.930
2485	1	48	362	012	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.646
2485	1	48	362	013	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.135
2485	1	48	362	014	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	1.512
2485	1	48	362	015	Non Pressure Parts	TRUSS	1.000	NO	0.025

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2485	1	48	362	016	Non Pressure Parts	TRUSS	1.000	NO	0.018
2485	1	48	362	017	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	1.583
2485	1	48	362	018	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	1.512
2485	1	48	362	019	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.930
2485	1	48	362	020	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.646
2485	1	48	362	021	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.135
2485	1	48	362	022	Non Pressure Parts	TRUSS	1.000	NO	0.025
2485	1	48	362	023	Non Pressure Parts	TRUSS	1.000	NO	0.018
2485	1	48	362	024	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	1.583
2485	1	48	362	025	Non Pressure Parts	STRAIGHT DUCT WALL	4.000	NO	0.818

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2485	1	48	362	026	Non Pressure Parts	TRUSS	2.000	NO	0.051
2485	1	48	362	027	Non Pressure Parts	STRAIGHT DUCT WALL	4.000	NO	0.810
2485	1	48	362	028	Non Pressure Parts	STRAIGHT DUCT WALL	4.000	NO	0.039
2485	1	48	362	029	Non Pressure Parts	STRAIGHT DUCT WALL	2.000	NO	0.783
2485	1	48	362	030	Non Pressure Parts	STRAIGHT DUCT WALL	4.000	NO	0.033
2485	1	48	362	031	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.095
2485	1	48	362	032	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.098
2485	1	48	362	033	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.524
2485	1	48	362	034	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.524
2485	1	48	362	035	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.095

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2485	1	48	362	036	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.098
2485	1	48	362	037	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.524
2485	1	48	362	038	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.524
2485	1	48	362	039	Non Pressure Parts	BLANKING PLATE	2.000	NO	1.027
2485	1	48	362	040	Non Pressure Parts	SCALLOP PLATE 7.0;614X150	4.000	NO	0.020
2485	1	48	362	041	Non Pressure Parts	SCALLOP PLATE 7.0;6040X150	4.000	NO	0.199
2485	1	48	365	001	Non Pressure Parts	BEAM-1	2.000	NO	0.035
2485	1	48	365	002	Non Pressure Parts	FAB BOX-1	8.000	NO	2.654
2485	1	48	365	003	Non Pressure Parts	FAB BOX-2	10.000	NO	1.522
2485	1	48	365	004	Non Pressure Parts	BEAM-2	8.000	NO	2.527

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2485	1	48	365	005	Non Pressure Parts	ISMB200;643	2.000	NO	0.033
2485	1	48	365	006	Non Pressure Parts	BEAM-3	2.000	NO	0.108
2485	1	48	365	007	Non Pressure Parts	RESTRAINT-1	2.000	NO	0.107
2485	1	48	365	008	Non Pressure Parts	RESTRAINT-2	4.000	NO	0.214
2485	1	48	365	009	Non Pressure Parts	BEAM-4	2.000	NO	0.007
2485	1	48	365	010	Non Pressure Parts	BEAM-5	2.000	NO	0.221
2485	1	48	365	011	Non Pressure Parts	BEAM-6	4.000	NO	1.024
2485	1	48	365	012	Non Pressure Parts	RESTRAINT-3	2.000	NO	0.136
2485	1	48	365	013	Non Pressure Parts	CHANNEL-1	4.000	NO	0.055
2485	1	48	365	014	Non Pressure Parts	STOPPER-1	4.000	NO	0.013

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2485	1	48	365	015	Non Pressure Parts	BEAM-7	2.000	NO	0.029
2485	1	48	365	016	Non Pressure Parts	STOPPER-2	4.000	NO	0.004
2485	1	48	365	017	Non Pressure Parts	STOPPER-3	2.000	NO	0.006
2485	1	48	365	018	Non Pressure Parts	STOPPER-4	2.000	NO	0.006
2485	1	48	365	019	Non Pressure Parts	STOPPER-5	12.000	NO	0.033
2485	1	48	365	020	Non Pressure Parts	PLT 16;400x240	4.000	NO	0.048
2485	1	48	365	021	Non Pressure Parts	PLT 16;486x350	2.000	NO	0.043
2485	1	48	365	022	Non Pressure Parts	PLT 16;786x190	6.000	NO	0.113
2485	1	48	365	023	Non Pressure Parts	PLT 16;350x200	2.000	NO	0.018
2485	1	48	365	024	Non Pressure Parts	PLT 16;774x190	2.000	NO	0.037

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2485	1	48	365	025	Non Pressure Parts	PLT 16;400x200	8.000	NO	0.080
2485	1	48	993	001	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.162
2485	1	48	993	002	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.157
2485	1	48	993	003	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.111
2485	1	48	993	004	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.123
2485	1	48	993	005	Non Pressure Parts	BEND DUCT WALL	1.000	NO	0.325
2485	1	48	993	006	Non Pressure Parts	BEND DUCT WALL	1.000	NO	0.325
2485	1	48	993	007	Non Pressure Parts	BEND DUCT WALL	1.000	NO	0.237
2485	1	48	993	008	Non Pressure Parts	BEND DUCT WALL	1.000	NO	0.237
2485	1	48	993	009	Non Pressure Parts	DOOR WALL	1.000	NO	0.128

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2485	1	48	993	010	Non Pressure Parts	DOOR WALL	1.000	NO	0.163
2485	1	48	993	011	Non Pressure Parts	DOOR WALL	1.000	NO	0.163
2485	1	48	993	012	Non Pressure Parts	DOOR WALL	1.000	NO	0.128
2485	1	48	993	013	Non Pressure Parts	DOOR WALL	1.000	NO	0.163
2485	1	48	993	014	Non Pressure Parts	DOOR WALL	1.000	NO	0.163
2485	1	48	993	015	Non Pressure Parts	DOOR FRAME	2.000	NO	0.593
2485	1	48	993	016	Non Pressure Parts	MAN HOLE DOOR	15.000	NO	1.118
2485	1	48	993	017	Non Pressure Parts	SLIDE BEARING PLATE(ASBESTOS FREE)	30.000	NO	0.136
2485	1	48	993	018	Non Pressure Parts	GRAB BAR-1	15.000	NO	0.051
2485	1	48	993	019	Non Pressure Parts	GRAB BAR-2	15.000	NO	0.129

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2485	1	48	993	020	Non Pressure Parts	""PIPE-1 DIA 457.2X48,6764 LG"	5.000	NO	1.810
2485	1	48	993	021	Non Pressure Parts	CARBON FIBRE/CERMC FIBRE GLND PKNG 6MM	20.000	M	0.001
2485	1	48	993	022	Non Pressure Parts	PLATE 16.0;2500X1000	2.000	NO	0.628
2485	1	48	993	023	Non Pressure Parts	PLATE 7.00;2500X2500	20.000	NO	6.869
2485	1	48	993	024	Non Pressure Parts	PLATE 12.0 MM - IS2062E250A	1.000	NO	0.236
2485	1	48	993	025	Non Pressure Parts	PLATE 7;SA387GR12CL2;2500X1500	4.000	NO	0.824
2485	1	48	993	026	Non Pressure Parts	PLATE 10 MM	2.000	NO	1.178
2485	1	48	993	027	Non Pressure Parts	ERW PIPE NB 80 HEAVY- IS1239	10.000	NO	0.591
2485	1	48	993	028	Non Pressure Parts	ANGLE 75 X 75 X 6 -RM	100.000	M	0.680
2485	1	48	993	029	Non Pressure Parts	CHANNEL 200 :RM;30M	40.000	M	0.892

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2485	1	48	993	030	Non Pressure Parts	CHANNEL 150;RM	60.000	M	1.008
2485	1	48	993	031	Non Pressure Parts	CHANNEL 300;RM	60.000	M	2.178
2485	1	48	993	032	Non Pressure Parts	CHANNEL 100;RM	100.000	M	0.956
2485	1	48	993	033	Non Pressure Parts	BEAM 200;RM	30.000	M	0.762
2485	1	48	993	034	Non Pressure Parts	BEAM 250 ;RM	30.000	M	1.119
2485	1	48	993	035	Non Pressure Parts	BEAM 300;RM	30.000	M	1.380
2485	1	48	993	036	Non Pressure Parts	PLATE 25.0 MM - IS2062E250BR	1.000	NO	0.736
2485	1	48	993	037	Non Pressure Parts	PLATE 32.0 MM - IS2062E250BR	1.000	NO	0.502
2485	1	48	993	038	Non Pressure Parts	DIA 63MM-SA105	3.000	NO	0.441
2485	1	48	993	039	Non Pressure Parts	HEX HD SCR-U-M12X40 -4.6-IS1363P2	300.000	NO	0.015

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2485	1	48	993	040	Non Pressure Parts	NUT -M12 -CL4-IS1363P3	300.000	NO	0.006
2485	1	48	993	041	Non Pressure Parts	PUN WASHER-M12 -IS2016-A	300.000	NO	0.003
2485	1	48	993	042	Non Pressure Parts	HEX HD SCRU-M16X45 -4.6-IS1363P2	600.000	NO	0.060
2485	1	48	993	043	Non Pressure Parts	NUT -M16 -CL4-IS1363P3	600.000	NO	0.018
2485	1	48	993	044	Non Pressure Parts	PUN WASHER-M16 -IS2016-A	100.000	NO	0.001
2485	1	48	993	045	Non Pressure Parts	HEX HD SCRU-M20X65 -4.6-IS1363P2	50.000	NO	0.011
2485	1	48	993	046	Non Pressure Parts	NUT -M20 -CL4-IS1363P3	50.000	NO	0.004
2485	1	48	993	047	Non Pressure Parts	PUN WASHER-M20 -IS2016-A	50.000	NO	0.001
2485	1	48	993	048	Non Pressure Parts	HEX HD SCRU-M16X55 -4.6-IS1363P2	25.000	NO	0.003
2485	1	48	993	049	Non Pressure Parts	PLATE 20	225.000	M2	35.325

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2485	1	99	400	001	Non Pressure Parts	ELEC.TWH CAP.1.0T LIT:26.000M-APH ELE.	1.000	NO	1.300
2485	1	99	400	002	Non Pressure Parts	DSL-CABLE TROLLEY TYE 17.255 M LONG.	1.000	NO	0.500
2485	1	SS	391	001	Structure	BST391-101 PLT40*400	2.000	NO	0.559
2485	1	SS	391	002	Structure	BST391-102 PLT40*400	2.000	NO	2.919
2485	1	SS	391	003	Structure	BST391-103 PLT40*400	2.000	NO	3.658
2485	1	SS	391	004	Structure	BST391-104 PLT40*400	4.000	NO	5.055
2485	1	SS	391	005	Structure	POH391-101 ISMB150	2.000	NO	0.016
2485	1	SS	391	006	Structure	SS391-101 ISMB200	2.000	NO	0.152
2485	1	SS	391	007	Structure	SS391-102 ISMB200	2.000	NO	0.062
2485	1	SS	391	008	Structure	SS391-103 ISMB150	4.000	NO	0.060
2485	1	SS	391	009	Structure	SS391-104 ISMB150	4.000	NO	0.059
2485	1	SS	391	010	Structure	SS391-105 ISMC150	1.000	NO	0.020
2485	1	SS	391	011	Structure	SS391-106 ISMC150	1.000	NO	0.020
2485	1	SS	391	012	Structure	SS391-107 ISMB150	4.000	NO	0.071
2485	1	SS	391	013	Structure	SS391-108 ISMB200	2.000	NO	0.147
2485	1	SS	391	014	Structure	SS391-109 ISMB200	4.000	NO	0.263
2485	1	SS	391	015	Structure	SS391-110 ISMB200	2.000	NO	0.061
2485	1	SS	391	016	Structure	SS391-111 ISMB150	1.000	NO	0.016
2485	1	SS	391	017	Structure	SS391-112 ISMB150	1.000	NO	0.016
2485	1	SS	391	018	Structure	SS391-113 ISMB200	2.000	NO	0.175
2485	1	SS	391	019	Structure	SS391-114 ISMB150	4.000	NO	0.066
2485	1	SS	391	020	Structure	SS391-115 ISMB200	1.000	NO	0.070
2485	1	SS	391	021	Structure	SS391-116 ISMB200	1.000	NO	0.070
2485	1	SS	391	022	Structure	SS391-117 ISMB150	1.000	NO	0.011
2485	1	SS	391	023	Structure	SS391-118 ISMB150	1.000	NO	0.011

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2485	1	SS	391	024	Structure	SS391-119 ISMB150	10.000	NO	0.171
2485	1	SS	391	025	Structure	SS391-120 ISMB350	2.000	NO	0.593
2485	1	SS	391	026	Structure	SS391-121 ISMB200	1.000	NO	0.055
2485	1	SS	391	027	Structure	SS391-122 ISMB200	1.000	NO	0.055
2485	1	SS	391	028	Structure	SS391-123 ISMB150	1.000	NO	0.014
2485	1	SS	391	029	Structure	SS391-124 ISMB150	1.000	NO	0.014
2485	1	SS	391	030	Structure	SS391-125 ISMB150	2.000	NO	0.034
2485	1	SS	391	031	Structure	SS391-126 ISMB250	1.000	NO	0.147
2485	1	SS	391	032	Structure	SS391-127 ISMB250	1.000	NO	0.147
2485	1	SS	391	033	Structure	SS391-128 ISMB200	1.000	NO	0.040
2485	1	SS	391	034	Structure	SS391-129 ISMB200	1.000	NO	0.040
2485	1	SS	391	035	Structure	SS391-130 ISMB350	2.000	NO	0.588
2485	1	SS	391	036	Structure	SS391-131 ISMB200	1.000	NO	0.028
2485	1	SS	391	037	Structure	SS391-132 ISMB150	1.000	NO	0.017
2485	1	SS	391	038	Structure	SS391-133 ISMB150	1.000	NO	0.014
2485	1	SS	391	039	Structure	SS391-134 ISMB150	1.000	NO	0.014
2485	1	SS	391	040	Structure	SS391-135 ISMB200	1.000	NO	0.079
2485	1	SS	391	041	Structure	SS391-136 ISMB200	1.000	NO	0.079
2485	1	SS	391	042	Structure	SS391-137 ISMB150	1.000	NO	0.032
2485	1	SS	391	043	Structure	SS391-138 ISMB150	1.000	NO	0.032
2485	1	SS	391	044	Structure	SS391-139 ISMB200	1.000	NO	0.043
2485	1	SS	391	045	Structure	SS391-140 ISMB150	1.000	NO	0.026
2485	1	SS	391	046	Structure	SS391-141 ISMB150	1.000	NO	0.014
2485	1	SS	391	047	Structure	SS391-142 ISMB150	1.000	NO	0.014
2485	1	SS	391	048	Structure	SS391-143 ISMB300	6.000	NO	1.149
2485	1	SS	391	049	Structure	SS391-144 ISMB150	8.000	NO	0.059
2485	1	SS	391	050	Structure	SS391-145 ISMB150	2.000	NO	0.019
2485	1	SS	391	051	Structure	SS391-146 ISMB150	2.000	NO	0.019

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2485	1	SS	391	052	Structure	SS391-147 ISMB150	6.000	NO	0.159
2485	1	SS	391	053	Structure	SS391-148 ISMB350	2.000	NO	0.590
2485	1	SS	391	054	Structure	SS391-149 ISMB150	4.000	NO	0.060
2485	1	SS	391	055	Structure	SS391-150 ISMB150	6.000	NO	0.116
2485	1	SS	391	056	Structure	SS391-151 ISMB150	6.000	NO	0.062
2485	1	SS	391	057	Structure	SS391-152 ISMB150	2.000	NO	0.050
2485	1	SS	391	058	Structure	SS391-153 ISMB150	2.000	NO	0.030
2485	1	SS	391	059	Structure	SS391-154 ISMB150	6.000	NO	0.089
2485	1	SS	391	060	Structure	SS391-155 ISMB150	2.000	NO	0.016
2485	1	SS	391	061	Structure	SS391-156 ISMB200	2.000	NO	0.043
2485	1	SS	391	062	Structure	SS391-157 WB700X300-32/16	2.000	NO	5.534
2485	1	SS	391	063	Structure	SS391-158 WB500X300-36/20	2.000	NO	1.785
2485	1	SS	391	064	Structure	SS391-159 WB400X250-20/16	4.000	NO	1.697
2485	1	SS	391	065	Structure	SS391-160 BC150	2.000	NO	0.076
2485	1	SS	391	066	Structure	SS391-161 BC200	2.000	NO	0.101
2485	1	SS	391	067	Structure	SS391-162 BC150	4.000	NO	0.153
2485	1	SS	391	068	Structure	SS391-194 PLT25*250	8.000	NO	0.216
2485	1	SS	391	069	Structure	PLATE 16	5.000	NO	0.186
2485	1	SS	391	070	Structure	POH391-102 ISMB250	2.000	NO	0.043
2485	1	SS	391	071	Structure	POH391-103 ISMB200	2.000	NO	0.024
2485	1	SS	391	072	Structure	POH391-104 ISMB200	4.000	NO	0.252
2485	1	SS	391	073	Structure	POH391-105 ISMB200	4.000	NO	0.249
2485	1	SS	391	074	Structure	POH391-106 ISMB200	2.000	NO	0.058
2485	1	SS	391	075	Structure	POH391-107 ISMB150	4.000	NO	0.078
2485	1	SS	391	076	Structure	POH391-108 ISMB400	8.000	NO	0.949
2485	1	SS	391	077	Structure	SS391-163 ISMB300	2.000	NO	0.242

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2485	1	SS	391	078	Structure	SS391-164 ISMB200	4.000	NO	0.202
2485	1	SS	391	079	Structure	SS391-165 ISMB150	6.000	NO	0.094
2485	1	SS	391	080	Structure	SS391-166 ISMB200	2.000	NO	0.139
2485	1	SS	391	081	Structure	SS391-167 ISMB300	2.000	NO	0.519
2485	1	SS	391	082	Structure	SS391-168 ISMB200	2.000	NO	0.053
2485	1	SS	391	083	Structure	SS391-169 ISMB150	2.000	NO	0.024
2485	1	SS	391	084	Structure	SS391-170 ISMB200	1.000	NO	0.031
2485	1	SS	391	085	Structure	SS391-171 ISMB200	1.000	NO	0.030
2485	1	SS	391	086	Structure	SS391-172 ISMB200	2.000	NO	0.138
2485	1	SS	391	087	Structure	SS391-173 ISMB200	4.000	NO	0.198
2485	1	SS	391	088	Structure	SS391-174 ISMB200	2.000	NO	0.104
2485	1	SS	391	089	Structure	SS391-175 ISMB150	4.000	NO	0.060
2485	1	SS	391	090	Structure	SS391-176 ISMB150	2.000	NO	0.030
2485	1	SS	391	091	Structure	SS391-177 ISMB150	4.000	NO	0.081
2485	1	SS	391	092	Structure	SS391-178 ISMB200	4.000	NO	0.106
2485	1	SS	391	093	Structure	SS391-179 WB700X300-36/25	1.000	NO	3.573
2485	1	SS	391	094	Structure	SS391-180 WB700X300-36/25	1.000	NO	3.573
2485	1	SS	391	095	Structure	SS391-181 WB700X300-40/32	1.000	NO	0.802
2485	1	SS	391	096	Structure	SS391-182 ISMB150	2.000	NO	0.030
2485	1	SS	391	097	Structure	SS391-183 WB700X300-40/32	1.000	NO	3.217
2485	1	SS	391	098	Structure	SS391-184 WB700X300-40/32	1.000	NO	3.217
2485	1	SS	391	099	Structure	SS391-185 WB700X300-40/32	1.000	NO	0.802
2485	1	SS	391	100	Structure	SS391-186 ISMB600	4.000	NO	0.626
2485	1	SS	391	101	Structure	SS391-187 ISMB400	3.000	NO	0.193

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2485	1	SS	391	102	Structure	SS391-188 ISMB400	1.000	NO	0.064
2485	1	SS	391	103	Structure	SS391-189 WB700X300-36/25	1.000	NO	0.166
2485	1	SS	391	104	Structure	SS391-190 ISMB150	4.000	NO	0.065
2485	1	SS	391	105	Structure	SS391-191 ISMB150	2.000	NO	0.033
2485	1	SS	391	106	Structure	SS391-192 WB700X300-36/25	2.000	NO	0.303
2485	1	SS	391	107	Structure	SS391-193 WB700X300-36/25	2.000	NO	7.142
2485	1	SS	391	108	Structure	SS391-195 ISMB200	4.000	NO	0.147
2485	1	SS	391	109	Structure	SS391-196 ISA100X100X10	1.000	NO	0.089
2485	1	SS	391	110	Structure	SS391-197 ISMB300	2.000	NO	0.141
2485	1	SS	391	111	Structure	SS391-198 ISA65X65X6	1.000	NO	0.041
2485	1	SS	391	112	Structure	SS391-199 ISMB150	2.000	NO	0.022
2485	1	SS	391	113	Structure	SS391-200 ISMB200	2.000	NO	0.193
2485	1	SS	391	114	Structure	SS391-201 ISMB150	2.000	NO	0.013
2485	1	SS	391	115	Structure	SS391-202 ISMB600	2.000	NO	1.055
2485	1	SS	391	116	Structure	SS391-203 ISA200X200X20	1.000	NO	0.551
2485	1	SS	391	117	Structure	SS391-204 ISA200X200X20	1.000	NO	0.551
2485	1	SS	391	118	Structure	SS391-205 WB700X300-20/16	2.000	NO	1.272
2485	1	SS	391	119	Structure	SS391-206 ISMB400	2.000	NO	0.413
2485	1	SS	391	120	Structure	SS391-207 ISMB600	2.000	NO	0.878
2485	1	SS	391	121	Structure	SS391-208 ISA200X200X20	1.000	NO	0.491
2485	1	SS	391	122	Structure	SS391-209 ISA200X200X20	1.000	NO	0.491
2485	1	SS	391	123	Structure	SS391-210 ISA100X100X10	1.000	NO	0.096
2485	1	SS	391	124	Structure	SS391-211 ISA65X65X6	1.000	NO	0.042
2485	1	SS	391	125	Structure	SS391-212 ISMB300	2.000	NO	0.180
2485	1	SS	391	126	Structure	SS391-213 ISA65X65X6	1.000	NO	0.035

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2485	1	SS	391	127	Structure	SS391-214 ISA100X100X10	1.000	NO	0.074
2485	1	SS	391	128	Structure	SS391-215 WB700X300-40/32	2.000	NO	8.355
2485	1	SS	391	129	Structure	SS391-216 PLT32*350	4.000	NO	0.654
2485	1	SS	391	130	Structure	SS391-217 WB700X300-40/32	2.000	NO	4.540
2485	1	SS	391	131	Structure	SS391-218 WB700X300-40/32	1.000	NO	2.352
2485	1	SS	391	132	Structure	SS391-219 WB700X300-40/32	2.000	NO	6.539
2485	1	SS	391	133	Structure	SS391-220 PLT32*650	1.000	NO	0.282
2485,2486,2487,2488	1	12	903	001	Pressure Parts	TOP & BOTTOM SCALLOP PLATE 6 THK	4.000	NO	0.139
2485,2486,2487,2488	1	12	903	002	Pressure Parts	SIDE PLATE 6 THK	4.000	NO	0.014
2485,2486,2487,2488	1	28	700	001	Insulation	TAPSCREW-ST 4.2X13C	40,000.000	NO	0.040
2485,2486,2487,2488	1	32	410	001	Insulation	FIXING PIN 245 L	2,300.000	NO	0.124
2485,2486,2487,2488	1	32	410	002	Insulation	FIXING PIN 165 L	6,000.000	NO	0.222
2485,2486,2487,2488	1	32	410	003	Insulation	RETAINER TYPE 'A' 4-32-010-01053	7,800.000	NO	0.476

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2485,2486,2487,2488	1	32	410	004	Insulation	AL CASING SUPPORT 03-650L	2,800.000	NO	0.420
2485,2486,2487,2488	1	32	410	005	Insulation	WIRE DIA 1.219 MM - GI - IS280	93.000	KG	0.093
2485,2486,2487,2488	1	32	410	006	Insulation	WIRE DIA 0.711 MM - GI - IS280	43.000	KG	0.043
2485,2486,2487,2488	1	32	410	007	Insulation	PLAIN ALUMINIUM SHEET 0.711 MM	1,150.000	M2	2.208
2485,2486,2487,2488	1	32	410	008	Insulation	SHEET 3.15MM-IS1079	8.000	NO	0.297
2485,2486,2487,2488	1	33	421	001	Insulation	WOOL-100KG/CU.M-50MM ONE SIDE GI WIRENET	570.000	M2	3.135
2485,2486,2487,2488	1	33	421	002	Insulation	WOOL-100KG/CU.M-60MM-ONE SIDE GI WIRENET	590.000	M2	3.835
2485,2486,2487,2488	1	33	421	003	Insulation	WOOL-100KG/CU.M-50MM-BOTH SIDE GI WIRENE	540.000	M2	3.240
2485,2486,2487,2488	1	33	421	004	Insulation	WOOL-150KG/CU.M-60MM-ONE SIDE GI WIRENET	675.000	M2	6.413

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2485,2486,2487,2488	1	33	421	005	Insulation	WOOL-150KG/CU.M-60MM-BOTH SIDE SS WIRENE	215.000	M2	2.150
2485,2486,2487,2488	1	36	396	001	Structure	SLIDE BEARING PLATE(ASBESTOS FREE)	5.000	NO	0.023
2485,2486,2487,2488	1	36	700	001	Structure	M24X70 HSFG BOLTS & NUTS GRADE 8.8	180.000	NO	0.096
2485,2486,2487,2488	1	36	700	002	Structure	M24 WASHER GRADE 8.8	360.000	NO	0.015
2485,2486,2487,2488	1	36	821	001	Structure	STAIR FROM EL.48.200TO EL.50.100	2.000	NO	0.534
2485,2486,2487,2488	1	36	821	002	Structure	V.L FROM EL.0 TO EL.4.400	1.000	NO	0.084
2485,2486,2487,2488	1	36	821	003	Structure	V.L FROM EL.4.400 TOEL.8.800	1.000	NO	0.082
2485,2486,2487,2488	1	36	821	004	Structure	V.L FROM EL.11.500 TO EL.13.800	1.000	NO	0.049
2485,2486,2487,2488	1	36	821	005	Structure	V.L FROM EL.13.100 TO EL.15.400	1.000	NO	0.049

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2485,2486,2487,2488	1	36	821	006	Structure	V.L FROM EL.27.800 TO EL.28.725	4.000	NO	0.107
2485,2486,2487,2488	1	36	821	007	Structure	V.L FROM EL.27.800 TO EL.30.100	2.000	NO	0.098
2485,2486,2487,2488	1	36	821	008	Structure	V.L FROM EL.57.800 TO EL.58.500	2.000	NO	0.046
2485,2486,2487,2488	1	36	821	009	Structure	V.L FROM EL.61.350 TO EL.62.850	2.000	NO	0.072
2485,2486,2487,2488	1	48	344	001	Non Pressure Parts	EXPANSION BELLOWS-NON METALLIC	2.000	NO	5.500
2485,2486,2487,2488	1	48	354	001	Non Pressure Parts	NON-METALLIC EXPANSION JOINT	2.000	NO	3.500
2485,2486,2487,2488	1	48	364	001	Non Pressure Parts	NON-METALLIC EXPANSION JOINT	2.000	NO	4.000
2486	1	08	501	001	Pressure Parts	VERTICAL BUCKSTAY BEAM	2.000	NO	0.474
2486	1	08	501	002	Pressure Parts	ANGLE	4.000	NO	0.032
2486	1	08	501	003	Pressure Parts	ANGLE	8.000	NO	0.035
2486	1	08	501	004	Pressure Parts	HSS BOLT & NUT M 24X 90	24.000	NO	0.014

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2486	1	08	501	005	Pressure Parts	WASHER M 24 A (HSFG WASHER)	24.000	NO	0.001
2486	1	08	501	006	Pressure Parts	PLATE 20	1.000	NO	1.884
2486	1	08	501	007	Pressure Parts	ISMC 150	24.000	NO	2.016
2486	1	08	501	008	Pressure Parts	PLATE 12	14.000	NO	0.435
2486	1	08	501	009	Pressure Parts	RETAINER	50.000	NO	0.058
2486	1	08	501	010	Pressure Parts	PLATE 25	3.000	NO	1.766
2486	1	08	501	011	Pressure Parts	PLATE 16	2.000	NO	1.256
2486	1	11	618	001	Pressure Parts	LOOSE TUBE D44.5X6.8	50.000	NO	0.221
2486	1	11	618	002	Pressure Parts	BENT TUBE D44.5X6.8	42.000	NO	0.287
2486	1	11	618	003	Pressure Parts	SHAPED PLATE 6 THK	180.000	NO	0.035
2486	1	12	903	001	Pressure Parts	TOP & BOTTOM SCALLOP PLATE 6 THK	4.000	NO	0.139
2486	1	12	903	002	Pressure Parts	SIDE PLATE 6 THK	4.000	NO	0.014
2486	1	28	700	001	Insulation	TAPSCREW-ST 4.2X13C	40,000.000	NO	0.040
2486	1	32	410	001	Insulation	FIXING PIN 245 L	2,300.000	NO	0.124
2486	1	32	410	002	Insulation	FIXING PIN 165 L	6,000.000	NO	0.222
2486	1	32	410	003	Insulation	RETAINER TYPE 'A' 4-32-010-01053	7,800.000	NO	0.476
2486	1	32	410	004	Insulation	AL CASING SUPPORT 03-650L	2,800.000	NO	0.420

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2486	1	32	410	005	Insulation	WIRE DIA 1.219 MM - GI - IS280	93.000	KG	0.093
2486	1	32	410	006	Insulation	WIRE DIA 0.711 MM - GI - IS280	43.000	KG	0.043
2486	1	32	410	007	Insulation	PLAIN ALUMINIUM SHEET 0.711 MM	1,150.000	M2	2.208
2486	1	32	410	008	Insulation	SHEET 3.15MM-IS1079	8.000	NO	0.297
2486	1	33	421	001	Insulation	WOOL-100KG/CU.M-50MM ONE SIDE GI WIRENET	570.000	M2	3.135
2486	1	33	421	002	Insulation	WOOL-100KG/CU.M-60MM- ONE SIDE GI WIRENET	590.000	M2	3.835
2486	1	33	421	003	Insulation	WOOL-100KG/CU.M-50MM- BOTH SIDE GI WIRENE	540.000	M2	3.240
2486	1	33	421	004	Insulation	WOOL-150KG/CU.M-60MM- ONE SIDE GI WIRENET	675.000	M2	6.413
2486	1	33	421	005	Insulation	WOOL-150KG/CU.M-60MM- BOTH SIDE SS WIRENE	215.000	M2	2.150
2486	1	36	394	001	Structure	WELDED ANGLE-01	8.000	NO	6.059
2486	1	36	394	002	Structure	WELDED ANGLE-02	8.000	NO	8.036
2486	1	36	394	003	Structure	WELDED ANGLE-03	8.000	NO	6.474
2486	1	36	394	004	Structure	WELDED ANGLE-04	8.000	NO	5.274
2486	1	36	394	005	Structure	WELDED ANGLE-05	8.000	NO	2.277
2486	1	36	394	006	Structure	WELDED ANGLE-06	8.000	NO	3.049
2486	1	36	394	007	Structure	WELDED ANGLE-07	8.000	NO	3.757
2486	1	36	394	008	Structure	WELDED ANGLE-08	4.000	NO	2.554
2486	1	36	394	009	Structure	WELDED ANGLE-09	4.000	NO	3.378
2486	1	36	394	010	Structure	WELDED ANGLE-10	4.000	NO	2.722
2486	1	36	394	011	Structure	WELDED ANGLE-11	4.000	NO	3.080
2486	1	36	394	012	Structure	WELDED ANGLE-12	4.000	NO	2.023
2486	1	36	394	013	Structure	WELDED ANGLE-13	4.000	NO	1.595

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2486	1	36	394	014	Structure	WELDED ANGLE-14	4.000	NO	1.967
2486	1	36	394	015	Structure	PLATE 16	8.000	NO	2.942
2486	1	36	394	016	Structure	PLATE 25	4.000	NO	5.313
2486	1	36	394	017	Structure	PLATE 25	12.000	NO	6.594
2486	1	36	394	018	Structure	PLATE 25	4.000	NO	0.758
2486	1	36	394	019	Structure	PLATE 32	2.000	NO	1.527
2486	1	36	394	020	Structure	PLATE 16	2.000	NO	0.452
2486	1	36	394	021	Structure	PLATE 12	2.000	NO	0.678
2486	1	36	395	001	Structure	FB395-102 WB350X350-25/16	1.000	NO	0.999
2486	1	36	395	002	Structure	FB395-103 WB500X250-25/16	2.000	NO	0.808
2486	1	36	395	003	Structure	FB395-104 ISMB300	2.000	NO	0.318
2486	1	36	395	004	Structure	FB395-105 WB400X300-32/20	6.000	NO	6.779
2486	1	36	395	005	Structure	FB395-106 ISMB350	2.000	NO	0.579
2486	1	36	395	006	Structure	FB395-108 WB500X250-25/16	1.000	NO	0.871
2486	1	36	395	007	Structure	FB395-110 WB500X250-25/16	1.000	NO	0.895
2486	1	36	395	008	Structure	FB395-111 WB400X300-32/20	8.000	NO	11.544
2486	1	36	395	009	Structure	FB395-112 WB600X300-25/16	2.000	NO	2.600
2486	1	36	395	010	Structure	FB395-113 ISMB350	2.000	NO	0.587
2486	1	36	395	011	Structure	FB395-114 WB400X250-20/16	1.000	NO	0.539
2486	1	36	395	012	Structure	FB395-115 WB400X250-20/16	1.000	NO	0.456
2486	1	36	395	013	Structure	FB395-116 WB350X350-25/16	1.000	NO	0.999

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2486	1	36	395	014	Structure	FB395-117 WB500X250-25/16	1.000	NO	0.895
2486	1	36	395	015	Structure	FB395-118 WB500X250-25/16	1.000	NO	0.871
2486	1	36	395	016	Structure	FH6L:395-101 WBOX-300X180-32/32	1.000	NO	2.222
2486	1	36	395	017	Structure	FH6L:395-102 WBOX-300X180-32/32	1.000	NO	1.682
2486	1	36	395	018	Structure	FH6R:395-101 WBOX-300X180-32/32	1.000	NO	2.222
2486	1	36	395	019	Structure	FH6R:395-102 WBOX-300X180-32/32	1.000	NO	1.682
2486	1	36	395	020	Structure	MR395-101 WB450X190-16/10	1.000	NO	0.133
2486	1	36	395	021	Structure	MR395-102 WB450X190-16/10	1.000	NO	0.133
2486	1	36	395	022	Structure	MR395-103 WB450X190-16/10	1.000	NO	0.320
2486	1	36	395	023	Structure	MR395-104 WB450X190-16/10	1.000	NO	0.320
2486	1	36	395	024	Structure	MR395-105 WB450X190-16/10	1.000	NO	0.377
2486	1	36	395	025	Structure	MR395-106 WB450X190-16/10	1.000	NO	0.377
2486	1	36	395	026	Structure	MR395-107 WB450X190-16/10	1.000	NO	0.442
2486	1	36	395	027	Structure	MR395-108 WB450X190-16/10	1.000	NO	0.442
2486	1	36	395	028	Structure	MR395-109 WB450X190-16/10	1.000	NO	0.672
2486	1	36	395	029	Structure	MR395-110 WB450X190-16/10	1.000	NO	0.672

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2486	1	36	395	030	Structure	MR395-111 WB450X190-16/10	1.000	NO	0.096
2486	1	36	395	031	Structure	MR395-112 WB450X190-16/10	1.000	NO	0.096
2486	1	36	395	032	Structure	P395-101 PLT10*280	4.000	NO	0.885
2486	1	36	395	033	Structure	P395-102 PLT12*162	4.000	NO	0.614
2486	1	36	395	034	Structure	VB395-101 WBOX200X200-16/16	2.000	NO	1.258
2486	1	36	395	035	Structure	VB395-102 WBOX200X200-16/16	2.000	NO	1.186
2486	1	36	395	036	Structure	VB395-103 WBOX200X200-16/16	2.000	NO	1.262
2486	1	36	395	037	Structure	VB395-104 WBOX200X200-16/16	2.000	NO	1.388
2486	1	36	395	038	Structure	VB395-105 WBOX200X200-16/16	2.000	NO	1.071
2486	1	36	395	039	Structure	VB395-106 WBOX200X200-16/16	2.000	NO	0.901
2486	1	36	395	040	Structure	VB395-107 WBOX200X200-16/16	2.000	NO	1.035
2486	1	36	395	041	Structure	VB395-108 WBOX200X200-16/16	2.000	NO	0.785
2486	1	36	395	042	Structure	VB395-109 WBOX200X200-16/16	2.000	NO	0.813
2486	1	36	396	001	Structure	SLIDE BEARING PLATE(ASBESTOS FREE)	5.000	NO	0.023
2486	1	36	700	001	Structure	M24X70 HSFG BOLTS & NUTS GRADE 8.8	180.000	NO	0.096
2486	1	36	700	002	Structure	M24 WASHER GRADE 8.8	360.000	NO	0.015
2486	1	36	814	001	Structure	FLOOR GRILL 25 X 450X 995	75.000	NO	1.290
2486	1	36	814	002	Structure	FLOOR GRILL 25 X 920X 995	85.000	NO	2.854

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2486	1	36	814	003	Structure	FLOOR GRILL 25 X 1050 X 995	120.000	NO	4.568
2486	1	36	814	004	Structure	FLOOR GRILL 25 X 1150 X 995	168.000	NO	6.978
2486	1	36	814	005	Structure	FLOOR GRILL 25 X 1300 X 995	90.000	NO	4.201
2486	1	36	814	006	Structure	GUARD PLATE 5	890.000	NO	6.987
2486	1	36	814	007	Structure	SH.3.15	60.000	NO	0.037
2486	1	36	814	008	Structure	EFFG 25 X 6000 X 995	10.000	NO	2.276
2486	1	36	821	001	Structure	STAIR FROM EL.48.200TO EL.50.100	2.000	NO	0.534
2486	1	36	821	002	Structure	V.L FROM EL.0 TO EL.4.400	1.000	NO	0.084
2486	1	36	821	003	Structure	V.L FROM EL.4.400 TO EL.8.800	1.000	NO	0.082
2486	1	36	821	004	Structure	V.L FROM EL.11.500 TO EL.13.800	1.000	NO	0.049
2486	1	36	821	005	Structure	V.L FROM EL.13.100 TO EL.15.400	1.000	NO	0.049
2486	1	36	821	006	Structure	V.L FROM EL.27.800 TO EL.28.725	4.000	NO	0.107
2486	1	36	821	007	Structure	V.L FROM EL.27.800 TO EL.30.100	2.000	NO	0.098
2486	1	36	821	008	Structure	V.L FROM EL.57.800 TO EL.58.500	2.000	NO	0.046
2486	1	36	821	009	Structure	V.L FROM EL.61.350 TO EL.62.850	2.000	NO	0.072
2486	1	36	850	001	Structure	HANDRAIL POST FOR PLATFORM	675.000	NO	2.456
2486	1	36	850	002	Structure	ERW TUBE DIA. 42.4X3.2	675.000	NO	3.139
2486	1	36	850	003	Structure	HANDRAIL POST FOR STAIR	50.000	NO	0.185

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2486	1	36	850	004	Structure	ERW TUBE DIA 42.4X3.2	50.000	NO	0.233
2486	1	36	850	005	Structure	90 BEND TUBE DIA 42.4X3.2	526.000	NO	0.745
2486	1	36	850	006	Structure	135DEG BENDTUBE D42.4X3.2	150.000	NO	0.153
2486	1	36	850	007	Structure	135DEG BENDTUBE D42.4X3.2	100.000	NO	0.118
2486	1	36	850	008	Structure	""C"" BEND TUBE" D42.4X3.2	10.000	NO	0.017
2486	1	36	850	009	Structure	""C"" BEND TUBE" D42.4X3.2	10.000	NO	0.031
2486	1	36	850	010	Structure	SPL.BEND TUBE D42.4X3.2	10.000	NO	0.024
2486	1	36	850	011	Structure	ERW TUBE DIA 42.4X3.2	4,106.000	M	12.729
2486	1	36	850	012	Structure	ISA 65X65X6	30.000	M	0.174
2486	1	36	993	001	Structure	ISMB 125X70	10.000	NO	0.804
2486	1	36	993	002	Structure	ISMB 150X75	10.000	NO	0.900
2486	1	36	993	003	Structure	ISMB 200X100	10.000	NO	1.524
2486	1	36	993	004	Structure	UB 254X146	6.000	NO	1.332
2486	1	36	993	005	Structure	UB 305X166	4.000	NO	1.106
2486	1	36	993	006	Structure	ISMB 350X140	8.000	NO	2.515
2486	1	36	993	007	Structure	UB 406X178	6.000	NO	2.164
2486	1	36	993	008	Structure	NPB 450X190	8.000	NO	3.725
2486	1	36	993	009	Structure	NPB 500X200	4.000	NO	2.177
2486	1	36	993	010	Structure	NPB 600X220	6.000	NO	4.406
2486	1	36	993	011	Structure	ISMC 200X75	10.000	NO	1.338
2486	1	36	993	012	Structure	ISMC 250X82	5.000	NO	1.026
2486	1	36	993	013	Structure	ISMC 300X90	5.000	NO	1.089
2486	1	36	993	014	Structure	ISA 65X65X6	8.000	NO	0.278
2486	1	36	993	015	Structure	ISA 80X80X8	5.000	NO	0.288
2486	1	36	993	016	Structure	ISA 100X100X10	8.000	NO	0.715

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2486	1	36	993	017	Structure	PLATE 10	5.000	NO	2.453
2486	1	36	993	018	Structure	PLATE 25	4.000	NO	2.944
2486	1	48	342	001	Non Pressure Parts	DUCT WALL	2.000	NO	0.565
2486	1	48	342	002	Non Pressure Parts	DUCT WALL	2.000	NO	0.564
2486	1	48	342	003	Non Pressure Parts	DUCT WALL	4.000	NO	0.635
2486	1	48	342	004	Non Pressure Parts	TRUSS	2.000	NO	0.071
2486	1	48	342	005	Non Pressure Parts	DUCTWALL	2.000	NO	0.289
2486	1	48	342	006	Non Pressure Parts	DUCTWALL	2.000	NO	0.289
2486	1	48	342	007	Non Pressure Parts	DUCTWALL	2.000	NO	0.540
2486	1	48	342	008	Non Pressure Parts	DUCTWALL	2.000	NO	0.540
2486	1	48	342	009	Non Pressure Parts	GUSSET PLATE	4.000	NO	0.026
2486	1	48	342	010	Non Pressure Parts	TRUSS	4.000	NO	0.141

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2486	1	48	342	011	Non Pressure Parts	TRUSS	2.000	NO	0.071
2486	1	48	342	012	Non Pressure Parts	DUCTWALL	4.000	NO	0.135
2486	1	48	342	013	Non Pressure Parts	DUCTWALL	4.000	NO	0.075
2486	1	48	342	014	Non Pressure Parts	DUCT WALL	2.000	NO	2.103
2486	1	48	342	015	Non Pressure Parts	DUCTWALL	2.000	NO	2.344
2486	1	48	344	001	Non Pressure Parts	EXPANSION BELLOWS-NON METALLIC	2.000	NO	5.500
2486	1	48	345	001	Non Pressure Parts	RESTRAINT	4.000	NO	2.309
2486	1	48	345	002	Non Pressure Parts	FAB-BEAM	4.000	NO	3.928
2486	1	48	345	003	Non Pressure Parts	PLT 16;386x350	4.000	NO	0.068
2486	1	48	345	004	Non Pressure Parts	STOPPER	8.000	NO	0.051

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2486	1	48	345	005	Non Pressure Parts	HANGER ASSEMBLY	4.000	NO	0.580
2486	1	48	352	001	Non Pressure Parts	STRAIGHT DUCT WALL	2.000	NO	0.601
2486	1	48	352	002	Non Pressure Parts	STRAIGHT DUCT WALL	2.000	NO	0.601
2486	1	48	352	003	Non Pressure Parts	STRAIGHT DUCT WALL	4.000	NO	0.453
2486	1	48	352	004	Non Pressure Parts	TRUSS	1.000	NO	0.023
2486	1	48	352	005	Non Pressure Parts	TRUSS	2.000	NO	0.087
2486	1	48	352	006	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	0.476
2486	1	48	352	007	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	0.476
2486	1	48	352	008	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	1.209
2486	1	48	352	009	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	1.391

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2486	1	48	352	010	Non Pressure Parts	TRUSS	1.000	NO	0.023
2486	1	48	352	011	Non Pressure Parts	TRUSS	2.000	NO	0.087
2486	1	48	352	012	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	0.476
2486	1	48	352	013	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	0.476
2486	1	48	352	014	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	1.391
2486	1	48	352	015	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	1.209
2486	1	48	352	016	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.793
2486	1	48	352	017	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.016
2486	1	48	352	018	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.801
2486	1	48	352	019	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.205

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2486	1	48	352	020	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.058
2486	1	48	352	021	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.353
2486	1	48	352	022	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.390
2486	1	48	352	023	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.174
2486	1	48	352	024	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	2.236
2486	1	48	352	025	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.647
2486	1	48	352	026	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.756
2486	1	48	352	027	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.181
2486	1	48	352	028	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.181
2486	1	48	352	029	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.982

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2486	1	48	352	030	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.839
2486	1	48	352	031	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.625
2486	1	48	352	032	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.077
2486	1	48	352	033	Non Pressure Parts	TRUSS	1.000	NO	0.042
2486	1	48	352	034	Non Pressure Parts	TRUSS	1.000	NO	0.033
2486	1	48	352	035	Non Pressure Parts	TRUSS	1.000	NO	0.033
2486	1	48	352	036	Non Pressure Parts	TRUSS	2.000	NO	0.066
2486	1	48	352	037	Non Pressure Parts	GUSSET PLATE	2.000	NO	0.014
2486	1	48	352	038	Non Pressure Parts	GUSSET PLATE	1.000	NO	0.008
2486	1	48	352	039	Non Pressure Parts	TRUSS	1.000	NO	0.028

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2486	1	48	352	040	Non Pressure Parts	TRUSS	1.000	NO	0.028
2486	1	48	352	041	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.793
2486	1	48	352	042	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.016
2486	1	48	352	043	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.801
2486	1	48	352	044	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.205
2486	1	48	352	045	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.058
2486	1	48	352	046	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.353
2486	1	48	352	047	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.390
2486	1	48	352	048	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.174
2486	1	48	352	049	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	2.237

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2486	1	48	352	050	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.647
2486	1	48	352	051	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.756
2486	1	48	352	052	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.181
2486	1	48	352	053	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.181
2486	1	48	352	054	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.625
2486	1	48	352	055	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.982
2486	1	48	352	056	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.839
2486	1	48	352	057	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.077
2486	1	48	352	058	Non Pressure Parts	GUSSET PLATE	2.000	NO	0.014
2486	1	48	352	059	Non Pressure Parts	GUSSET PLATE	1.000	NO	0.008

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2486	1	48	352	060	Non Pressure Parts	TRUSS	1.000	NO	0.033
2486	1	48	352	061	Non Pressure Parts	TRUSS	1.000	NO	0.033
2486	1	48	352	062	Non Pressure Parts	TRUSS	2.000	NO	0.066
2486	1	48	352	063	Non Pressure Parts	TRUSS	1.000	NO	0.042
2486	1	48	352	064	Non Pressure Parts	TRUSS	1.000	NO	0.028
2486	1	48	352	065	Non Pressure Parts	TRUSS	1.000	NO	0.028
2486	1	48	352	066	Non Pressure Parts	STRAIGHT DUCT WALL	4.000	NO	0.325
2486	1	48	352	067	Non Pressure Parts	STRAIGHT DUCT WALL	2.000	NO	0.112
2486	1	48	352	068	Non Pressure Parts	STRAIGHT DUCT WALL	2.000	NO	0.112
2486	1	48	352	069	Non Pressure Parts	STRAIGHT DUCT WALL	2.000	NO	2.349

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2486	1	48	352	070	Non Pressure Parts	STRAIGHT DUCT WALL	2.000	NO	2.438
2486	1	48	352	071	Non Pressure Parts	BLANKING PLATE	2.000	NO	3.278
2486	1	48	354	001	Non Pressure Parts	NON-METALLIC EXPANSION JOINT	2.000	NO	3.500
2486	1	48	355	001	Non Pressure Parts	BEAM-1	2.000	NO	0.056
2486	1	48	355	002	Non Pressure Parts	BEAM-2	4.000	NO	0.943
2486	1	48	355	003	Non Pressure Parts	FAB BOX-1	4.000	NO	2.368
2486	1	48	355	004	Non Pressure Parts	FAB BOX-2	4.000	NO	2.069
2486	1	48	355	005	Non Pressure Parts	ISMB200;1107	2.000	NO	0.056
2486	1	48	355	006	Non Pressure Parts	ISMB200;225	2.000	NO	0.011
2486	1	48	355	007	Non Pressure Parts	ISMB200;594	2.000	NO	0.030

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2486	1	48	355	008	Non Pressure Parts	ISMB200;794	2.000	NO	0.040
2486	1	48	355	009	Non Pressure Parts	BEAM-3	4.000	NO	2.273
2486	1	48	355	010	Non Pressure Parts	BEAM-4	2.000	NO	1.175
2486	1	48	355	011	Non Pressure Parts	PLT 16;300x200	4.000	NO	0.030
2486	1	48	355	012	Non Pressure Parts	PLT 16;492x400	4.000	NO	0.099
2486	1	48	355	013	Non Pressure Parts	PLT 16;436x175	4.000	NO	0.038
2486	1	48	355	014	Non Pressure Parts	PLT 16;400x240	2.000	NO	0.024
2486	1	48	355	015	Non Pressure Parts	RESTRAINT-1	1.000	NO	0.020
2486	1	48	355	016	Non Pressure Parts	RESTRAINT-2	1.000	NO	0.020
2486	1	48	355	017	Non Pressure Parts	RESTRAINT-3	2.000	NO	0.058

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2486	1	48	355	018	Non Pressure Parts	STOPPER	8.000	NO	0.033
2486	1	48	355	019	Non Pressure Parts	LUG PLATE-1	17.000	NO	0.034
2486	1	48	355	020	Non Pressure Parts	LUG PLATE-2	7.000	NO	0.013
2486	1	48	355	021	Non Pressure Parts	ISMB200;5314	2.000	NO	0.270
2486	1	48	362	001	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	0.170
2486	1	48	362	002	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	0.171
2486	1	48	362	003	Non Pressure Parts	TRUSS	2.000	NO	0.058
2486	1	48	362	004	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	1.626
2486	1	48	362	005	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	1.618
2486	1	48	362	006	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	0.170

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2486	1	48	362	007	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	0.171
2486	1	48	362	008	Non Pressure Parts	TRUSS	2.000	NO	0.058
2486	1	48	362	009	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	1.626
2486	1	48	362	010	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	1.618
2486	1	48	362	011	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.930
2486	1	48	362	012	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.646
2486	1	48	362	013	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.135
2486	1	48	362	014	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	1.512
2486	1	48	362	015	Non Pressure Parts	TRUSS	1.000	NO	0.025
2486	1	48	362	016	Non Pressure Parts	TRUSS	1.000	NO	0.018

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2486	1	48	362	017	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	1.583
2486	1	48	362	018	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	1.512
2486	1	48	362	019	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.930
2486	1	48	362	020	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.646
2486	1	48	362	021	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.135
2486	1	48	362	022	Non Pressure Parts	TRUSS	1.000	NO	0.025
2486	1	48	362	023	Non Pressure Parts	TRUSS	1.000	NO	0.018
2486	1	48	362	024	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	1.583
2486	1	48	362	025	Non Pressure Parts	STRAIGHT DUCT WALL	4.000	NO	0.818
2486	1	48	362	026	Non Pressure Parts	TRUSS	2.000	NO	0.051

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2486	1	48	362	027	Non Pressure Parts	STRAIGHT DUCT WALL	4.000	NO	0.810
2486	1	48	362	028	Non Pressure Parts	STRAIGHT DUCT WALL	4.000	NO	0.039
2486	1	48	362	029	Non Pressure Parts	STRAIGHT DUCT WALL	2.000	NO	0.783
2486	1	48	362	030	Non Pressure Parts	STRAIGHT DUCT WALL	4.000	NO	0.033
2486	1	48	362	031	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.095
2486	1	48	362	032	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.098
2486	1	48	362	033	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.524
2486	1	48	362	034	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.524
2486	1	48	362	035	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.095
2486	1	48	362	036	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.098

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2486	1	48	362	037	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.524
2486	1	48	362	038	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.524
2486	1	48	362	039	Non Pressure Parts	BLANKING PLATE	2.000	NO	1.027
2486	1	48	362	040	Non Pressure Parts	SCALLOP PLATE 7.0;614X150	4.000	NO	0.020
2486	1	48	362	041	Non Pressure Parts	SCALLOP PLATE 7.0;6040X150	4.000	NO	0.199
2486	1	48	364	001	Non Pressure Parts	NON-METALLIC EXPANSION JOINT	2.000	NO	4.000
2486	1	48	365	001	Non Pressure Parts	BEAM-1	2.000	NO	0.035
2486	1	48	365	002	Non Pressure Parts	FAB BOX-1	8.000	NO	2.654
2486	1	48	365	003	Non Pressure Parts	FAB BOX-2	10.000	NO	1.522
2486	1	48	365	004	Non Pressure Parts	BEAM-2	8.000	NO	2.527

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2486	1	48	365	005	Non Pressure Parts	ISMB200;643	2.000	NO	0.033
2486	1	48	365	006	Non Pressure Parts	BEAM-3	2.000	NO	0.108
2486	1	48	365	007	Non Pressure Parts	RESTRAINT-1	2.000	NO	0.107
2486	1	48	365	008	Non Pressure Parts	RESTRAINT-2	4.000	NO	0.214
2486	1	48	365	009	Non Pressure Parts	BEAM-4	2.000	NO	0.007
2486	1	48	365	010	Non Pressure Parts	BEAM-5	2.000	NO	0.221
2486	1	48	365	011	Non Pressure Parts	BEAM-6	4.000	NO	1.024
2486	1	48	365	012	Non Pressure Parts	RESTRAINT-3	2.000	NO	0.136
2486	1	48	365	013	Non Pressure Parts	CHANNEL-1	4.000	NO	0.055
2486	1	48	365	014	Non Pressure Parts	STOPPER-1	4.000	NO	0.013

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2486	1	48	365	015	Non Pressure Parts	BEAM-7	2.000	NO	0.029
2486	1	48	365	016	Non Pressure Parts	STOPPER-2	4.000	NO	0.004
2486	1	48	365	017	Non Pressure Parts	STOPPER-3	2.000	NO	0.006
2486	1	48	365	018	Non Pressure Parts	STOPPER-4	2.000	NO	0.006
2486	1	48	365	019	Non Pressure Parts	STOPPER-5	12.000	NO	0.033
2486	1	48	365	020	Non Pressure Parts	PLT 16;400x240	4.000	NO	0.048
2486	1	48	365	021	Non Pressure Parts	PLT 16;486x350	2.000	NO	0.043
2486	1	48	365	022	Non Pressure Parts	PLT 16;786x190	6.000	NO	0.113
2486	1	48	365	023	Non Pressure Parts	PLT 16;350x200	2.000	NO	0.018
2486	1	48	365	024	Non Pressure Parts	PLT 16;774x190	2.000	NO	0.037

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2486	1	48	365	025	Non Pressure Parts	PLT 16;400x200	8.000	NO	0.080
2486	1	48	993	001	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.162
2486	1	48	993	002	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.157
2486	1	48	993	003	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.111
2486	1	48	993	004	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.123
2486	1	48	993	005	Non Pressure Parts	BEND DUCT WALL	1.000	NO	0.325
2486	1	48	993	006	Non Pressure Parts	BEND DUCT WALL	1.000	NO	0.325
2486	1	48	993	007	Non Pressure Parts	BEND DUCT WALL	1.000	NO	0.237
2486	1	48	993	008	Non Pressure Parts	BEND DUCT WALL	1.000	NO	0.237
2486	1	48	993	009	Non Pressure Parts	DOOR WALL	1.000	NO	0.128

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2486	1	48	993	010	Non Pressure Parts	DOOR WALL	1.000	NO	0.163
2486	1	48	993	011	Non Pressure Parts	DOOR WALL	1.000	NO	0.163
2486	1	48	993	012	Non Pressure Parts	DOOR WALL	1.000	NO	0.128
2486	1	48	993	013	Non Pressure Parts	DOOR WALL	1.000	NO	0.163
2486	1	48	993	014	Non Pressure Parts	DOOR WALL	1.000	NO	0.163
2486	1	48	993	015	Non Pressure Parts	DOOR FRAME	2.000	NO	0.593
2486	1	48	993	016	Non Pressure Parts	MAN HOLE DOOR	15.000	NO	1.118
2486	1	48	993	017	Non Pressure Parts	SLIDE BEARING PLATE(ASBESTOS FREE)	30.000	NO	0.136
2486	1	48	993	018	Non Pressure Parts	GRAB BAR-1	15.000	NO	0.051
2486	1	48	993	019	Non Pressure Parts	GRAB BAR-2	15.000	NO	0.129

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2486	1	48	993	020	Non Pressure Parts	""PIPE-1 DIA 406.4 X4.8; 6500 LG	5.000	NO	1.545
2486	1	48	993	021	Non Pressure Parts	CARBON FIBRE/CERMC FIBRE GLND PKNG 6MM	20.000	M	0.001
2486	1	48	993	022	Non Pressure Parts	PLATE 16.0;2500X1000	2.000	NO	0.628
2486	1	48	993	023	Non Pressure Parts	PLATE 7.00;2500X2500	20.000	NO	6.869
2486	1	48	993	024	Non Pressure Parts	PLATE 12.0 MM - IS2062E250A	1.000	NO	0.236
2486	1	48	993	025	Non Pressure Parts	PLATE 7;SA387GR12CL2;2500X1500	4.000	NO	0.824
2486	1	48	993	026	Non Pressure Parts	PLATE 10 MM	2.000	NO	1.178
2486	1	48	993	027	Non Pressure Parts	ERW PIPE NB 80 HEAVY- IS1239	10.000	NO	0.591
2486	1	48	993	028	Non Pressure Parts	ANGLE 75 X 75 X 6 -RM	100.000	M	0.680
2486	1	48	993	029	Non Pressure Parts	CHANNEL 200 :RM;30M	40.000	M	0.892

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2486	1	48	993	030	Non Pressure Parts	CHANNEL 150;RM	60.000	M	1.008
2486	1	48	993	031	Non Pressure Parts	CHANNEL 300;RM	60.000	M	2.178
2486	1	48	993	032	Non Pressure Parts	CHANNEL 100;RM	100.000	M	0.956
2486	1	48	993	033	Non Pressure Parts	BEAM 200;RM	30.000	M	0.762
2486	1	48	993	034	Non Pressure Parts	BEAM 250 ;RM	30.000	M	1.119
2486	1	48	993	035	Non Pressure Parts	BEAM 300;RM	30.000	M	1.380
2486	1	48	993	036	Non Pressure Parts	PLATE 25.0 MM - IS2062E250BR	1.000	NO	0.736
2486	1	48	993	037	Non Pressure Parts	PLATE 32.0 MM - IS2062E250BR	1.000	NO	0.502
2486	1	48	993	038	Non Pressure Parts	DIA 63MM-SA105	3.000	NO	0.441
2486	1	48	993	039	Non Pressure Parts	HEX HD SCR-U-M12X40 -4.6-IS1363P2	300.000	NO	0.015

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2486	1	48	993	040	Non Pressure Parts	NUT -M12 -CL4-IS1363P3	300.000	NO	0.006
2486	1	48	993	041	Non Pressure Parts	PUN WASHER-M12 -IS2016-A	300.000	NO	0.003
2486	1	48	993	042	Non Pressure Parts	HEX HD SCRU-M16X45 -4.6-IS1363P2	600.000	NO	0.060
2486	1	48	993	043	Non Pressure Parts	NUT -M16 -CL4-IS1363P3	600.000	NO	0.018
2486	1	48	993	044	Non Pressure Parts	PUN WASHER-M16 -IS2016-A	100.000	NO	0.001
2486	1	48	993	045	Non Pressure Parts	HEX HD SCRU-M20X65 -4.6-IS1363P2	50.000	NO	0.011
2486	1	48	993	046	Non Pressure Parts	NUT -M20 -CL4-IS1363P3	50.000	NO	0.004
2486	1	48	993	047	Non Pressure Parts	PUN WASHER-M20 -IS2016-A	50.000	NO	0.001
2486	1	48	993	048	Non Pressure Parts	HEX HD SCRU-M16X55 -4.6-IS1363P2	25.000	NO	0.003
2486	1	48	993	049	Non Pressure Parts	PLATE 20	225.000	M2	35.325

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2486	1	99	400	001	Non Pressure Parts	ELEC.TWH CAP.1.0T LIT:26.000M-APH ELE.	1.000	NO	1.300
2486	1	99	400	002	Non Pressure Parts	DSL-CABLE TROLLEY TYE 17.255 M LONG.	1.000	NO	0.500
2486	1	SS	391	001	Structure	BST391-101 PLT40*400	2.000	NO	0.559
2486	1	SS	391	002	Structure	BST391-102 PLT40*400	2.000	NO	2.919
2486	1	SS	391	003	Structure	BST391-103 PLT40*400	2.000	NO	3.658
2486	1	SS	391	004	Structure	BST391-104 PLT40*400	4.000	NO	5.055
2486	1	SS	391	005	Structure	POH391-101 ISMB150	2.000	NO	0.016
2486	1	SS	391	006	Structure	SS391-101 ISMB200	2.000	NO	0.152
2486	1	SS	391	007	Structure	SS391-102 ISMB200	2.000	NO	0.062
2486	1	SS	391	008	Structure	SS391-103 ISMB150	4.000	NO	0.060
2486	1	SS	391	009	Structure	SS391-104 ISMB150	4.000	NO	0.059
2486	1	SS	391	010	Structure	SS391-105 ISMC150	1.000	NO	0.020
2486	1	SS	391	011	Structure	SS391-106 ISMC150	1.000	NO	0.020
2486	1	SS	391	012	Structure	SS391-107 ISMB150	4.000	NO	0.071
2486	1	SS	391	013	Structure	SS391-108 ISMB200	2.000	NO	0.147
2486	1	SS	391	014	Structure	SS391-109 ISMB200	4.000	NO	0.263
2486	1	SS	391	015	Structure	SS391-110 ISMB200	2.000	NO	0.061
2486	1	SS	391	016	Structure	SS391-111 ISMB150	1.000	NO	0.016
2486	1	SS	391	017	Structure	SS391-112 ISMB150	1.000	NO	0.016
2486	1	SS	391	018	Structure	SS391-113 ISMB200	2.000	NO	0.175
2486	1	SS	391	019	Structure	SS391-114 ISMB150	4.000	NO	0.066
2486	1	SS	391	020	Structure	SS391-115 ISMB200	1.000	NO	0.070
2486	1	SS	391	021	Structure	SS391-116 ISMB200	1.000	NO	0.070
2486	1	SS	391	022	Structure	SS391-117 ISMB150	1.000	NO	0.011
2486	1	SS	391	023	Structure	SS391-118 ISMB150	1.000	NO	0.011

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2486	1	SS	391	024	Structure	SS391-119 ISMB150	10.000	NO	0.171
2486	1	SS	391	025	Structure	SS391-120 ISMB350	2.000	NO	0.593
2486	1	SS	391	026	Structure	SS391-121 ISMB200	1.000	NO	0.055
2486	1	SS	391	027	Structure	SS391-122 ISMB200	1.000	NO	0.055
2486	1	SS	391	028	Structure	SS391-123 ISMB150	1.000	NO	0.014
2486	1	SS	391	029	Structure	SS391-124 ISMB150	1.000	NO	0.014
2486	1	SS	391	030	Structure	SS391-125 ISMB150	2.000	NO	0.034
2486	1	SS	391	031	Structure	SS391-126 ISMB250	1.000	NO	0.147
2486	1	SS	391	032	Structure	SS391-127 ISMB250	1.000	NO	0.147
2486	1	SS	391	033	Structure	SS391-128 ISMB200	1.000	NO	0.040
2486	1	SS	391	034	Structure	SS391-129 ISMB200	1.000	NO	0.040
2486	1	SS	391	035	Structure	SS391-130 ISMB350	2.000	NO	0.588
2486	1	SS	391	036	Structure	SS391-131 ISMB200	1.000	NO	0.028
2486	1	SS	391	037	Structure	SS391-132 ISMB150	1.000	NO	0.017
2486	1	SS	391	038	Structure	SS391-133 ISMB150	1.000	NO	0.014
2486	1	SS	391	039	Structure	SS391-134 ISMB150	1.000	NO	0.014
2486	1	SS	391	040	Structure	SS391-135 ISMB200	1.000	NO	0.079
2486	1	SS	391	041	Structure	SS391-136 ISMB200	1.000	NO	0.079
2486	1	SS	391	042	Structure	SS391-137 ISMB150	1.000	NO	0.032
2486	1	SS	391	043	Structure	SS391-138 ISMB150	1.000	NO	0.032
2486	1	SS	391	044	Structure	SS391-139 ISMB200	1.000	NO	0.043
2486	1	SS	391	045	Structure	SS391-140 ISMB150	1.000	NO	0.026
2486	1	SS	391	046	Structure	SS391-141 ISMB150	1.000	NO	0.014
2486	1	SS	391	047	Structure	SS391-142 ISMB150	1.000	NO	0.014
2486	1	SS	391	048	Structure	SS391-143 ISMB300	6.000	NO	1.149
2486	1	SS	391	049	Structure	SS391-144 ISMB150	8.000	NO	0.059
2486	1	SS	391	050	Structure	SS391-145 ISMB150	2.000	NO	0.019
2486	1	SS	391	051	Structure	SS391-146 ISMB150	2.000	NO	0.019

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2486	1	SS	391	052	Structure	SS391-147 ISMB150	6.000	NO	0.159
2486	1	SS	391	053	Structure	SS391-148 ISMB350	2.000	NO	0.590
2486	1	SS	391	054	Structure	SS391-149 ISMB150	4.000	NO	0.060
2486	1	SS	391	055	Structure	SS391-150 ISMB150	6.000	NO	0.116
2486	1	SS	391	056	Structure	SS391-151 ISMB150	6.000	NO	0.062
2486	1	SS	391	057	Structure	SS391-152 ISMB150	2.000	NO	0.050
2486	1	SS	391	058	Structure	SS391-153 ISMB150	2.000	NO	0.030
2486	1	SS	391	059	Structure	SS391-154 ISMB150	6.000	NO	0.089
2486	1	SS	391	060	Structure	SS391-155 ISMB150	2.000	NO	0.016
2486	1	SS	391	061	Structure	SS391-156 ISMB200	2.000	NO	0.043
2486	1	SS	391	062	Structure	SS391-157 WB700X300-32/16	2.000	NO	5.534
2486	1	SS	391	063	Structure	SS391-158 WB500X300-36/20	2.000	NO	1.785
2486	1	SS	391	064	Structure	SS391-159 WB400X250-20/16	4.000	NO	1.697
2486	1	SS	391	065	Structure	SS391-160 BC150	2.000	NO	0.076
2486	1	SS	391	066	Structure	SS391-161 BC200	2.000	NO	0.101
2486	1	SS	391	067	Structure	SS391-162 BC150	4.000	NO	0.153
2486	1	SS	391	068	Structure	SS391-194 PLT25*250	8.000	NO	0.216
2486	1	SS	391	069	Structure	PLATE 16	5.000	NO	0.186
2486	1	SS	391	070	Structure	POH391-102 ISMB250	2.000	NO	0.043
2486	1	SS	391	071	Structure	POH391-103 ISMB200	2.000	NO	0.024
2486	1	SS	391	072	Structure	POH391-104 ISMB200	4.000	NO	0.252
2486	1	SS	391	073	Structure	POH391-105 ISMB200	4.000	NO	0.249
2486	1	SS	391	074	Structure	POH391-106 ISMB200	2.000	NO	0.058
2486	1	SS	391	075	Structure	POH391-107 ISMB150	4.000	NO	0.078
2486	1	SS	391	076	Structure	POH391-108 ISMB400	8.000	NO	0.949
2486	1	SS	391	077	Structure	SS391-163 ISMB300	2.000	NO	0.242

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2486	1	SS	391	078	Structure	SS391-164 ISMB200	4.000	NO	0.202
2486	1	SS	391	079	Structure	SS391-165 ISMB150	6.000	NO	0.094
2486	1	SS	391	080	Structure	SS391-166 ISMB200	2.000	NO	0.139
2486	1	SS	391	081	Structure	SS391-167 ISMB300	2.000	NO	0.519
2486	1	SS	391	082	Structure	SS391-168 ISMB200	2.000	NO	0.053
2486	1	SS	391	083	Structure	SS391-169 ISMB150	2.000	NO	0.024
2486	1	SS	391	084	Structure	SS391-170 ISMB200	1.000	NO	0.031
2486	1	SS	391	085	Structure	SS391-171 ISMB200	1.000	NO	0.030
2486	1	SS	391	086	Structure	SS391-172 ISMB200	2.000	NO	0.138
2486	1	SS	391	087	Structure	SS391-173 ISMB200	4.000	NO	0.198
2486	1	SS	391	088	Structure	SS391-174 ISMB200	2.000	NO	0.104
2486	1	SS	391	089	Structure	SS391-175 ISMB150	4.000	NO	0.060
2486	1	SS	391	090	Structure	SS391-176 ISMB150	2.000	NO	0.030
2486	1	SS	391	091	Structure	SS391-177 ISMB150	4.000	NO	0.081
2486	1	SS	391	092	Structure	SS391-178 ISMB200	4.000	NO	0.106
2486	1	SS	391	093	Structure	SS391-179 WB700X300-36/25	1.000	NO	3.573
2486	1	SS	391	094	Structure	SS391-180 WB700X300-36/25	1.000	NO	3.573
2486	1	SS	391	095	Structure	SS391-181 WB700X300-40/32	1.000	NO	0.802
2486	1	SS	391	096	Structure	SS391-182 ISMB150	2.000	NO	0.030
2486	1	SS	391	097	Structure	SS391-183 WB700X300-40/32	1.000	NO	3.217
2486	1	SS	391	098	Structure	SS391-184 WB700X300-40/32	1.000	NO	3.217
2486	1	SS	391	099	Structure	SS391-185 WB700X300-40/32	1.000	NO	0.802
2486	1	SS	391	100	Structure	SS391-186 ISMB600	4.000	NO	0.626
2486	1	SS	391	101	Structure	SS391-187 ISMB400	3.000	NO	0.193

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2486	1	SS	391	102	Structure	SS391-188 ISMB400	1.000	NO	0.064
2486	1	SS	391	103	Structure	SS391-189 WB700X300-36/25	1.000	NO	0.166
2486	1	SS	391	104	Structure	SS391-190 ISMB150	4.000	NO	0.065
2486	1	SS	391	105	Structure	SS391-191 ISMB150	2.000	NO	0.033
2486	1	SS	391	106	Structure	SS391-192 WB700X300-36/25	2.000	NO	0.303
2486	1	SS	391	107	Structure	SS391-193 WB700X300-36/25	2.000	NO	7.142
2486	1	SS	391	108	Structure	SS391-195 ISMB200	4.000	NO	0.147
2486	1	SS	391	109	Structure	SS391-196 ISA100X100X10	1.000	NO	0.089
2486	1	SS	391	110	Structure	SS391-197 ISMB300	2.000	NO	0.141
2486	1	SS	391	111	Structure	SS391-198 ISA65X65X6	1.000	NO	0.041
2486	1	SS	391	112	Structure	SS391-199 ISMB150	2.000	NO	0.022
2486	1	SS	391	113	Structure	SS391-200 ISMB200	2.000	NO	0.193
2486	1	SS	391	114	Structure	SS391-201 ISMB150	2.000	NO	0.013
2486	1	SS	391	115	Structure	SS391-202 ISMB600	2.000	NO	1.055
2486	1	SS	391	116	Structure	SS391-203 ISA200X200X20	1.000	NO	0.551
2486	1	SS	391	117	Structure	SS391-204 ISA200X200X20	1.000	NO	0.551
2486	1	SS	391	118	Structure	SS391-205 WB700X300-20/16	2.000	NO	1.272
2486	1	SS	391	119	Structure	SS391-206 ISMB400	2.000	NO	0.413
2486	1	SS	391	120	Structure	SS391-207 ISMB600	2.000	NO	0.878
2486	1	SS	391	121	Structure	SS391-208 ISA200X200X20	1.000	NO	0.491
2486	1	SS	391	122	Structure	SS391-209 ISA200X200X20	1.000	NO	0.491
2486	1	SS	391	123	Structure	SS391-210 ISA100X100X10	1.000	NO	0.096
2486	1	SS	391	124	Structure	SS391-211 ISA65X65X6	1.000	NO	0.042
2486	1	SS	391	125	Structure	SS391-212 ISMB300	2.000	NO	0.180
2486	1	SS	391	126	Structure	SS391-213 ISA65X65X6	1.000	NO	0.035

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2486	1	SS	391	127	Structure	SS391-214 ISA100X100X10	1.000	NO	0.074
2486	1	SS	391	128	Structure	SS391-215 WB700X300-40/32	2.000	NO	8.355
2486	1	SS	391	129	Structure	SS391-216 PLT32*350	4.000	NO	0.654
2486	1	SS	391	130	Structure	SS391-217 WB700X300-40/32	2.000	NO	4.540
2486	1	SS	391	131	Structure	SS391-218 WB700X300-40/32	1.000	NO	2.352
2486	1	SS	391	132	Structure	SS391-219 WB700X300-40/32	2.000	NO	6.539
2486	1	SS	391	133	Structure	SS391-220 PLT32*650	1.000	NO	0.282
2487	1	08	501	001	Pressure Parts	VERTICAL BUCKSTAY BEAM	2.000	NO	0.474
2487	1	08	501	002	Pressure Parts	ANGLE	4.000	NO	0.032
2487	1	08	501	003	Pressure Parts	ANGLE	8.000	NO	0.035
2487	1	08	501	004	Pressure Parts	HSS BOLT & NUT M 24X 90	24.000	NO	0.014
2487	1	08	501	005	Pressure Parts	WASHER M 24 A (HSFG WASHER)	24.000	NO	0.001
2487	1	08	501	006	Pressure Parts	PLATE 20	1.000	NO	1.884
2487	1	08	501	007	Pressure Parts	ISMC 150	24.000	NO	2.016
2487	1	08	501	008	Pressure Parts	PLATE 12	14.000	NO	0.435
2487	1	08	501	009	Pressure Parts	RETAINER	50.000	NO	0.058
2487	1	08	501	010	Pressure Parts	PLATE 25	3.000	NO	1.766

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2487	1	08	501	011	Pressure Parts	PLATE 16	2.000	NO	1.256
2487	1	11	618	001	Pressure Parts	LOOSE TUBE D44.5X6.8	50.000	NO	0.221
2487	1	11	618	002	Pressure Parts	BENT TUBE D44.5X6.8	42.000	NO	0.287
2487	1	11	618	003	Pressure Parts	SHAPED PLATE 6 THK	180.000	NO	0.035
2487	1	12	903	001	Pressure Parts	TOP & BOTTOM SCALLOP PLATE 6 THK	4.000	NO	0.139
2487	1	12	903	002	Pressure Parts	SIDE PLATE 6 THK	4.000	NO	0.014
2487	1	28	700	001	Insulation	TAPSCREW-ST 4.2X13C	40,000.000	NO	0.040
2487	1	32	410	001	Insulation	FIXING PIN 245 L	2,300.000	NO	0.124
2487	1	32	410	002	Insulation	FIXING PIN 165 L	6,000.000	NO	0.222
2487	1	32	410	003	Insulation	RETAINER TYPE 'A' 4-32-010-01053	7,800.000	NO	0.476
2487	1	32	410	004	Insulation	AL CASING SUPPORT 03-650L	2,800.000	NO	0.420
2487	1	32	410	005	Insulation	WIRE DIA 1.219 MM - GI - IS280	93.000	KG	0.093
2487	1	32	410	006	Insulation	WIRE DIA 0.711 MM - GI - IS280	43.000	KG	0.043
2487	1	32	410	007	Insulation	PLAIN ALUMINIUM SHEET 0.711 MM	1,150.000	M2	2.208
2487	1	32	410	008	Insulation	SHEET 3.15MM-IS1079	8.000	NO	0.297
2487	1	33	421	001	Insulation	WOOL-100KG/CU.M-50MM ONE SIDE GI WIRENET	570.000	M2	3.135
2487	1	33	421	002	Insulation	WOOL-100KG/CU.M-60MM- ONE SIDE GI WIRENET	590.000	M2	3.835

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2487	1	33	421	003	Insulation	WOOL-100KG/CU.M-50MM-BOTH SIDE GI WIRENE	540.000	M2	3.240
2487	1	33	421	004	Insulation	WOOL-150KG/CU.M-60MM-ONE SIDE GI WIRENET	675.000	M2	6.413
2487	1	33	421	005	Insulation	WOOL-150KG/CU.M-60MM-BOTH SIDE SS WIRENE	215.000	M2	2.150
2487	1	36	394	001	Structure	WELDED ANGLE-01	8.000	NO	6.059
2487	1	36	394	002	Structure	WELDED ANGLE-02	8.000	NO	8.036
2487	1	36	394	003	Structure	WELDED ANGLE-03	8.000	NO	6.474
2487	1	36	394	004	Structure	WELDED ANGLE-04	8.000	NO	5.274
2487	1	36	394	005	Structure	WELDED ANGLE-05	8.000	NO	2.277
2487	1	36	394	006	Structure	WELDED ANGLE-06	8.000	NO	3.049
2487	1	36	394	007	Structure	WELDED ANGLE-07	8.000	NO	3.757
2487	1	36	394	008	Structure	WELDED ANGLE-08	4.000	NO	2.554
2487	1	36	394	009	Structure	WELDED ANGLE-09	4.000	NO	3.378
2487	1	36	394	010	Structure	WELDED ANGLE-10	4.000	NO	2.722
2487	1	36	394	011	Structure	WELDED ANGLE-11	4.000	NO	3.080
2487	1	36	394	012	Structure	WELDED ANGLE-12	4.000	NO	2.023
2487	1	36	394	013	Structure	WELDED ANGLE-13	4.000	NO	1.595
2487	1	36	394	014	Structure	WELDED ANGLE-14	4.000	NO	1.967
2487	1	36	394	015	Structure	PLATE 16	8.000	NO	2.942
2487	1	36	394	016	Structure	PLATE 25	4.000	NO	5.313
2487	1	36	394	017	Structure	PLATE 25	12.000	NO	6.594
2487	1	36	394	018	Structure	PLATE 25	4.000	NO	0.758
2487	1	36	394	019	Structure	PLATE 32	2.000	NO	1.527
2487	1	36	394	020	Structure	PLATE 16	2.000	NO	0.452
2487	1	36	394	021	Structure	PLATE 12	2.000	NO	0.678
2487	1	36	395	001	Structure	FB395-102 WB350X350-25/16	1.000	NO	0.999

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2487	1	36	395	002	Structure	FB395-103 WB500X250-25/16	2.000	NO	0.808
2487	1	36	395	003	Structure	FB395-104 ISMB300	2.000	NO	0.318
2487	1	36	395	004	Structure	FB395-105 WB400X300-32/20	6.000	NO	6.779
2487	1	36	395	005	Structure	FB395-106 ISMB350	2.000	NO	0.579
2487	1	36	395	006	Structure	FB395-108 WB500X250-25/16	1.000	NO	0.871
2487	1	36	395	007	Structure	FB395-110 WB500X250-25/16	1.000	NO	0.895
2487	1	36	395	008	Structure	FB395-111 WB400X300-32/20	8.000	NO	11.544
2487	1	36	395	009	Structure	FB395-112 WB600X300-25/16	2.000	NO	2.600
2487	1	36	395	010	Structure	FB395-113 ISMB350	2.000	NO	0.587
2487	1	36	395	011	Structure	FB395-114 WB400X250-20/16	1.000	NO	0.539
2487	1	36	395	012	Structure	FB395-115 WB400X250-20/16	1.000	NO	0.456
2487	1	36	395	013	Structure	FB395-116 WB350X350-25/16	1.000	NO	0.999
2487	1	36	395	014	Structure	FB395-117 WB500X250-25/16	1.000	NO	0.895
2487	1	36	395	015	Structure	FB395-118 WB500X250-25/16	1.000	NO	0.871
2487	1	36	395	016	Structure	FH6L:395-101 WBOX-300X180-32/32	1.000	NO	2.222
2487	1	36	395	017	Structure	FH6L:395-102 WBOX-300X180-32/32	1.000	NO	1.682
2487	1	36	395	018	Structure	FH6R:395-101 WBOX-300X180-32/32	1.000	NO	2.222

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2487	1	36	395	019	Structure	FH6R:395-102 WBOX-300X180-32/32	1.000	NO	1.682
2487	1	36	395	020	Structure	MR395-101 WB450X190-16/10	1.000	NO	0.133
2487	1	36	395	021	Structure	MR395-102 WB450X190-16/10	1.000	NO	0.133
2487	1	36	395	022	Structure	MR395-103 WB450X190-16/10	1.000	NO	0.320
2487	1	36	395	023	Structure	MR395-104 WB450X190-16/10	1.000	NO	0.320
2487	1	36	395	024	Structure	MR395-105 WB450X190-16/10	1.000	NO	0.377
2487	1	36	395	025	Structure	MR395-106 WB450X190-16/10	1.000	NO	0.377
2487	1	36	395	026	Structure	MR395-107 WB450X190-16/10	1.000	NO	0.442
2487	1	36	395	027	Structure	MR395-108 WB450X190-16/10	1.000	NO	0.442
2487	1	36	395	028	Structure	MR395-109 WB450X190-16/10	1.000	NO	0.672
2487	1	36	395	029	Structure	MR395-110 WB450X190-16/10	1.000	NO	0.672
2487	1	36	395	030	Structure	MR395-111 WB450X190-16/10	1.000	NO	0.096
2487	1	36	395	031	Structure	MR395-112 WB450X190-16/10	1.000	NO	0.096
2487	1	36	395	032	Structure	P395-101 PLT10*280	4.000	NO	0.885
2487	1	36	395	033	Structure	P395-102 PLT12*162	4.000	NO	0.614
2487	1	36	395	034	Structure	VB395-101 WBOX200X200-16/16	2.000	NO	1.258
2487	1	36	395	035	Structure	VB395-102 WBOX200X200-16/16	2.000	NO	1.186

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2487	1	36	395	036	Structure	VB395-103 WBOX200X200-16/16	2.000	NO	1.262
2487	1	36	395	037	Structure	VB395-104 WBOX200X200-16/16	2.000	NO	1.388
2487	1	36	395	038	Structure	VB395-105 WBOX200X200-16/16	2.000	NO	1.071
2487	1	36	395	039	Structure	VB395-106 WBOX200X200-16/16	2.000	NO	0.901
2487	1	36	395	040	Structure	VB395-107 WBOX200X200-16/16	2.000	NO	1.035
2487	1	36	395	041	Structure	VB395-108 WBOX200X200-16/16	2.000	NO	0.785
2487	1	36	395	042	Structure	VB395-109 WBOX200X200-16/16	2.000	NO	0.813
2487	1	36	396	001	Structure	SLIDE BEARING PLATE(ASBESTOS FREE)	5.000	NO	0.023
2487	1	36	700	001	Structure	M24X70 HSFG BOLTS & NUTS GRADE 8.8	180.000	NO	0.096
2487	1	36	700	002	Structure	M24 WASHER GRADE 8.8	360.000	NO	0.015
2487	1	36	814	001	Structure	FLOOR GRILL 25 X 450X 995	75.000	NO	1.290
2487	1	36	814	002	Structure	FLOOR GRILL 25 X 920X 995	85.000	NO	2.854
2487	1	36	814	003	Structure	FLOOR GRILL 25 X 1050 X 995	120.000	NO	4.568
2487	1	36	814	004	Structure	FLOOR GRILL 25 X 1150 X 995	168.000	NO	6.978
2487	1	36	814	005	Structure	FLOOR GRILL 25 X 1300 X 995	90.000	NO	4.201
2487	1	36	814	006	Structure	GUARD PLATE 5	890.000	NO	6.987
2487	1	36	814	007	Structure	SH.3.15	60.000	NO	0.037
2487	1	36	814	008	Structure	EFFG 25 X 6000 X 995	10.000	NO	2.276

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2487	1	36	821	001	Structure	STAIR FROM EL.48.200TO EL.50.100	2.000	NO	0.534
2487	1	36	821	002	Structure	V.L FROM EL.0 TO EL.4.400	1.000	NO	0.084
2487	1	36	821	003	Structure	V.L FROM EL.4.400 TO EL.8.800	1.000	NO	0.082
2487	1	36	821	004	Structure	V.L FROM EL.11.500 TO EL.13.800	1.000	NO	0.049
2487	1	36	821	005	Structure	V.L FROM EL.13.100 TO EL.15.400	1.000	NO	0.049
2487	1	36	821	006	Structure	V.L FROM EL.27.800 TO EL.28.725	4.000	NO	0.107
2487	1	36	821	007	Structure	V.L FROM EL.27.800 TO EL.30.100	2.000	NO	0.098
2487	1	36	821	008	Structure	V.L FROM EL.57.800 TO EL.58.500	2.000	NO	0.046
2487	1	36	821	009	Structure	V.L FROM EL.61.350 TO EL.62.850	2.000	NO	0.072
2487	1	36	850	001	Structure	HANDRAIL POST FOR PLATFORM	675.000	NO	2.456
2487	1	36	850	002	Structure	ERW TUBE DIA. 42.4X3.2	675.000	NO	3.139
2487	1	36	850	003	Structure	HANDRAIL POST FOR STAIR	50.000	NO	0.185
2487	1	36	850	004	Structure	ERW TUBE DIA 42.4X3.2	50.000	NO	0.233
2487	1	36	850	005	Structure	90 BEND TUBE DIA 42.4X3.2	526.000	NO	0.745
2487	1	36	850	006	Structure	135DEG BENDTUBE D42.4X3.2	150.000	NO	0.153
2487	1	36	850	007	Structure	135DEG BENDTUBE D42.4X3.2	100.000	NO	0.118
2487	1	36	850	008	Structure	""C"" BEND TUBE" D42.4X3.2	10.000	NO	0.017

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2487	1	36	850	009	Structure	""C"" BEND TUBE" D42.4X3.2	10.000	NO	0.031
2487	1	36	850	010	Structure	SPL.BEND TUBE D42.4X3.2	10.000	NO	0.024
2487	1	36	850	011	Structure	ERW TUBE DIA 42.4X3.2	4,106.000	M	12.729
2487	1	36	850	012	Structure	ISA 65X65X6	30.000	M	0.174
2487	1	36	993	001	Structure	ISMB 125X70	6.000	NO	0.804
2487	1	36	993	002	Structure	ISMB 150X75	6.000	NO	0.900
2487	1	36	993	003	Structure	ISMB 200X100	6.000	NO	1.524
2487	1	36	993	004	Structure	UB 254X146	6.000	NO	1.332
2487	1	36	993	005	Structure	UB 305X166	4.000	NO	1.106
2487	1	36	993	006	Structure	ISMB 350X140	6.000	NO	2.515
2487	1	36	993	007	Structure	UB 406X178	6.000	NO	2.164
2487	1	36	993	008	Structure	NPB 450X190	8.000	NO	3.725
2487	1	36	993	009	Structure	NPB 500X200	4.000	NO	2.177
2487	1	36	993	010	Structure	NPB 600X220	6.000	NO	4.406
2487	1	36	993	011	Structure	ISMC 200X75	6.000	NO	1.338
2487	1	36	993	012	Structure	ISMC 250X82	5.000	NO	1.026
2487	1	36	993	013	Structure	ISMC 300X90	3.000	NO	1.089
2487	1	36	993	014	Structure	ISA 65X65X6	8.000	NO	0.278
2487	1	36	993	015	Structure	ISA 80X80X8	3.000	NO	0.288
2487	1	36	993	016	Structure	ISA 100X100X10	6.000	NO	0.715
2487	1	36	993	017	Structure	PLATE 10	5.000	NO	2.453
2487	1	36	993	018	Structure	PLATE 25	4.000	NO	2.944
2487	1	48	342	001	Non Pressure Parts	DUCT WALL	2.000	NO	0.565
2487	1	48	342	002	Non Pressure Parts	DUCT WALL	2.000	NO	0.564

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2487	1	48	342	003	Non Pressure Parts	DUCT WALL	4.000	NO	0.635
2487	1	48	342	004	Non Pressure Parts	TRUSS	2.000	NO	0.071
2487	1	48	342	005	Non Pressure Parts	DUCTWALL	2.000	NO	0.289
2487	1	48	342	006	Non Pressure Parts	DUCTWALL	2.000	NO	0.289
2487	1	48	342	007	Non Pressure Parts	DUCTWALL	2.000	NO	0.540
2487	1	48	342	008	Non Pressure Parts	DUCTWALL	2.000	NO	0.540
2487	1	48	342	009	Non Pressure Parts	GUSSET PLATE	4.000	NO	0.026
2487	1	48	342	010	Non Pressure Parts	TRUSS	4.000	NO	0.141
2487	1	48	342	011	Non Pressure Parts	TRUSS	2.000	NO	0.071
2487	1	48	342	012	Non Pressure Parts	DUCTWALL	4.000	NO	0.135

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2487	1	48	342	013	Non Pressure Parts	DUCTWALL	4.000	NO	0.075
2487	1	48	342	014	Non Pressure Parts	DUCT WALL	2.000	NO	2.401
2487	1	48	342	015	Non Pressure Parts	DUCTWALL	2.000	NO	2.344
2487	1	48	344	001	Non Pressure Parts	EXPANSION BELLOWS-NON METALLIC	2.000	NO	5.500
2487	1	48	345	001	Non Pressure Parts	RESTRAINT	4.000	NO	2.309
2487	1	48	345	002	Non Pressure Parts	FAB-BEAM	4.000	NO	3.928
2487	1	48	345	003	Non Pressure Parts	PLT 16;386x350	4.000	NO	0.068
2487	1	48	345	004	Non Pressure Parts	STOPPER	8.000	NO	0.051
2487	1	48	345	005	Non Pressure Parts	HANGER ASSEMBLY	4.000	NO	0.526
2487	1	48	352	001	Non Pressure Parts	STRAIGHT DUCT WALL	2.000	NO	0.601

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2487	1	48	352	002	Non Pressure Parts	STRAIGHT DUCT WALL	2.000	NO	0.601
2487	1	48	352	003	Non Pressure Parts	STRAIGHT DUCT WALL	4.000	NO	0.453
2487	1	48	352	004	Non Pressure Parts	TRUSS	1.000	NO	0.023
2487	1	48	352	005	Non Pressure Parts	TRUSS	2.000	NO	0.087
2487	1	48	352	006	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	0.476
2487	1	48	352	007	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	0.476
2487	1	48	352	008	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	1.209
2487	1	48	352	009	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	1.391
2487	1	48	352	010	Non Pressure Parts	TRUSS	1.000	NO	0.023
2487	1	48	352	011	Non Pressure Parts	TRUSS	2.000	NO	0.087

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2487	1	48	352	012	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	0.476
2487	1	48	352	013	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	0.476
2487	1	48	352	014	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	1.391
2487	1	48	352	015	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	1.209
2487	1	48	352	016	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.793
2487	1	48	352	017	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.016
2487	1	48	352	018	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.801
2487	1	48	352	019	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.205
2487	1	48	352	020	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.058
2487	1	48	352	021	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.353

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2487	1	48	352	022	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.390
2487	1	48	352	023	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.174
2487	1	48	352	024	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	2.236
2487	1	48	352	025	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.647
2487	1	48	352	026	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.756
2487	1	48	352	027	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.181
2487	1	48	352	028	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.181
2487	1	48	352	029	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.982
2487	1	48	352	030	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.839
2487	1	48	352	031	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.625

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2487	1	48	352	032	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.077
2487	1	48	352	033	Non Pressure Parts	TRUSS	1.000	NO	0.042
2487	1	48	352	034	Non Pressure Parts	TRUSS	1.000	NO	0.033
2487	1	48	352	035	Non Pressure Parts	TRUSS	1.000	NO	0.033
2487	1	48	352	036	Non Pressure Parts	TRUSS	2.000	NO	0.066
2487	1	48	352	037	Non Pressure Parts	GUSSET PLATE	2.000	NO	0.014
2487	1	48	352	038	Non Pressure Parts	GUSSET PLATE	1.000	NO	0.008
2487	1	48	352	039	Non Pressure Parts	TRUSS	1.000	NO	0.028
2487	1	48	352	040	Non Pressure Parts	TRUSS	1.000	NO	0.028
2487	1	48	352	041	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.793

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2487	1	48	352	042	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.016
2487	1	48	352	043	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.801
2487	1	48	352	044	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.205
2487	1	48	352	045	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.058
2487	1	48	352	046	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.353
2487	1	48	352	047	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.390
2487	1	48	352	048	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.174
2487	1	48	352	049	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	2.237
2487	1	48	352	050	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.647
2487	1	48	352	051	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.756

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2487	1	48	352	052	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.181
2487	1	48	352	053	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.181
2487	1	48	352	054	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.625
2487	1	48	352	055	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.982
2487	1	48	352	056	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.839
2487	1	48	352	057	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.077
2487	1	48	352	058	Non Pressure Parts	GUSSET PLATE	2.000	NO	0.014
2487	1	48	352	059	Non Pressure Parts	GUSSET PLATE	1.000	NO	0.008
2487	1	48	352	060	Non Pressure Parts	TRUSS	1.000	NO	0.033
2487	1	48	352	061	Non Pressure Parts	TRUSS	1.000	NO	0.033

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2487	1	48	352	062	Non Pressure Parts	TRUSS	2.000	NO	0.066
2487	1	48	352	063	Non Pressure Parts	TRUSS	1.000	NO	0.042
2487	1	48	352	064	Non Pressure Parts	TRUSS	1.000	NO	0.028
2487	1	48	352	065	Non Pressure Parts	TRUSS	1.000	NO	0.028
2487	1	48	352	066	Non Pressure Parts	STRAIGHT DUCT WALL	4.000	NO	0.325
2487	1	48	352	067	Non Pressure Parts	STRAIGHT DUCT WALL	2.000	NO	0.112
2487	1	48	352	068	Non Pressure Parts	STRAIGHT DUCT WALL	2.000	NO	0.112
2487	1	48	352	069	Non Pressure Parts	STRAIGHT DUCT WALL	2.000	NO	2.349
2487	1	48	352	070	Non Pressure Parts	STRAIGHT DUCT WALL	2.000	NO	2.438
2487	1	48	352	071	Non Pressure Parts	BLANKING PLATE	2.000	NO	3.278

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2487	1	48	354	001	Non Pressure Parts	NON-METALLIC EXPANSION JOINT	2.000	NO	3.500
2487	1	48	355	001	Non Pressure Parts	BEAM-1	2.000	NO	0.056
2487	1	48	355	002	Non Pressure Parts	BEAM-2	4.000	NO	0.944
2487	1	48	355	003	Non Pressure Parts	FAB BOX-1	4.000	NO	2.368
2487	1	48	355	004	Non Pressure Parts	FAB BOX-2	4.000	NO	2.069
2487	1	48	355	005	Non Pressure Parts	ISMB200;1107	2.000	NO	0.056
2487	1	48	355	006	Non Pressure Parts	ISMB200;225	2.000	NO	0.011
2487	1	48	355	007	Non Pressure Parts	ISMB200;594	2.000	NO	0.030
2487	1	48	355	008	Non Pressure Parts	ISMB200;794	2.000	NO	0.040
2487	1	48	355	009	Non Pressure Parts	BEAM-3	4.000	NO	2.273

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2487	1	48	355	010	Non Pressure Parts	BEAM-4	2.000	NO	1.175
2487	1	48	355	011	Non Pressure Parts	PLT 16;300x200	4.000	NO	0.030
2487	1	48	355	012	Non Pressure Parts	PLT 16;492x400	4.000	NO	0.099
2487	1	48	355	013	Non Pressure Parts	PLT 16;436x175	4.000	NO	0.038
2487	1	48	355	014	Non Pressure Parts	PLT 16;400x240	2.000	NO	0.024
2487	1	48	355	015	Non Pressure Parts	RESTRAINT-1	1.000	NO	0.020
2487	1	48	355	016	Non Pressure Parts	RESTRAINT-2	1.000	NO	0.020
2487	1	48	355	017	Non Pressure Parts	RESTRAINT-3	2.000	NO	0.058
2487	1	48	355	018	Non Pressure Parts	STOPPER	8.000	NO	0.033
2487	1	48	355	019	Non Pressure Parts	LUG PLATE-1	17.000	NO	0.034

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2487	1	48	355	020	Non Pressure Parts	LUG PLATE-2	7.000	NO	0.013
2487	1	48	355	021	Non Pressure Parts	ISMB200;5314	2.000	NO	0.270
2487	1	48	362	001	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	0.170
2487	1	48	362	002	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	0.171
2487	1	48	362	003	Non Pressure Parts	TRUSS	2.000	NO	0.058
2487	1	48	362	004	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	1.626
2487	1	48	362	005	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	1.618
2487	1	48	362	006	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	0.170
2487	1	48	362	007	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	0.171
2487	1	48	362	008	Non Pressure Parts	TRUSS	2.000	NO	0.058

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2487	1	48	362	009	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	1.626
2487	1	48	362	010	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	1.618
2487	1	48	362	011	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.930
2487	1	48	362	012	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.646
2487	1	48	362	013	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.135
2487	1	48	362	014	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	1.512
2487	1	48	362	015	Non Pressure Parts	TRUSS	1.000	NO	0.025
2487	1	48	362	016	Non Pressure Parts	TRUSS	1.000	NO	0.018
2487	1	48	362	017	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	1.583
2487	1	48	362	018	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	1.512

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2487	1	48	362	019	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.930
2487	1	48	362	020	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.646
2487	1	48	362	021	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.135
2487	1	48	362	022	Non Pressure Parts	TRUSS	1.000	NO	0.025
2487	1	48	362	023	Non Pressure Parts	TRUSS	1.000	NO	0.018
2487	1	48	362	024	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	1.583
2487	1	48	362	025	Non Pressure Parts	STRAIGHT DUCT WALL	4.000	NO	0.818
2487	1	48	362	026	Non Pressure Parts	TRUSS	2.000	NO	0.051
2487	1	48	362	027	Non Pressure Parts	STRAIGHT DUCT WALL	4.000	NO	0.810
2487	1	48	362	028	Non Pressure Parts	STRAIGHT DUCT WALL	4.000	NO	0.039

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2487	1	48	362	029	Non Pressure Parts	STRAIGHT DUCT WALL	2.000	NO	0.783
2487	1	48	362	030	Non Pressure Parts	STRAIGHT DUCT WALL	4.000	NO	0.033
2487	1	48	362	031	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.095
2487	1	48	362	032	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.098
2487	1	48	362	033	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.524
2487	1	48	362	034	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.524
2487	1	48	362	035	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.095
2487	1	48	362	036	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.098
2487	1	48	362	037	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.524
2487	1	48	362	038	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.524

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2487	1	48	362	039	Non Pressure Parts	BLANKING PLATE	2.000	NO	1.027
2487	1	48	362	040	Non Pressure Parts	SCALLOP PLATE 7.0;614X150	4.000	NO	0.020
2487	1	48	362	041	Non Pressure Parts	SCALLOP PLATE 7.0;6040X150	4.000	NO	0.199
2487	1	48	364	001	Non Pressure Parts	NON-METALLIC EXPANSION JOINT	2.000	NO	4.000
2487	1	48	365	001	Non Pressure Parts	BEAM-1	2.000	NO	0.035
2487	1	48	365	002	Non Pressure Parts	FAB BOX-1	8.000	NO	2.654
2487	1	48	365	003	Non Pressure Parts	FAB BOX-2	10.000	NO	1.522
2487	1	48	365	004	Non Pressure Parts	BEAM-2	8.000	NO	2.527
2487	1	48	365	005	Non Pressure Parts	ISMB200;643	2.000	NO	0.033
2487	1	48	365	006	Non Pressure Parts	BEAM-3	2.000	NO	0.108

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2487	1	48	365	007	Non Pressure Parts	RESTRAINT-1	2.000	NO	0.107
2487	1	48	365	008	Non Pressure Parts	RESTRAINT-2	4.000	NO	0.214
2487	1	48	365	009	Non Pressure Parts	BEAM-4	2.000	NO	0.007
2487	1	48	365	010	Non Pressure Parts	BEAM-5	2.000	NO	0.221
2487	1	48	365	011	Non Pressure Parts	BEAM-6	4.000	NO	1.024
2487	1	48	365	012	Non Pressure Parts	RESTRAINT-3	2.000	NO	0.136
2487	1	48	365	013	Non Pressure Parts	CHANNEL-1	4.000	NO	0.055
2487	1	48	365	014	Non Pressure Parts	STOPPER-1	4.000	NO	0.013
2487	1	48	365	015	Non Pressure Parts	BEAM-7	2.000	NO	0.029
2487	1	48	365	016	Non Pressure Parts	STOPPER-2	4.000	NO	0.004

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2487	1	48	365	017	Non Pressure Parts	STOPPER-3	2.000	NO	0.006
2487	1	48	365	018	Non Pressure Parts	STOPPER-4	2.000	NO	0.006
2487	1	48	365	019	Non Pressure Parts	STOPPER-5	12.000	NO	0.033
2487	1	48	365	020	Non Pressure Parts	PLT 16;400x240	4.000	NO	0.048
2487	1	48	365	021	Non Pressure Parts	PLT 16;486x350	2.000	NO	0.043
2487	1	48	365	022	Non Pressure Parts	PLT 16;786x190	6.000	NO	0.113
2487	1	48	365	023	Non Pressure Parts	PLT 16;350x200	2.000	NO	0.018
2487	1	48	365	024	Non Pressure Parts	PLT 16;774x190	2.000	NO	0.037
2487	1	48	365	025	Non Pressure Parts	PLT 16;400x200	8.000	NO	0.080
2487	1	48	993	001	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.162

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2487	1	48	993	002	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.157
2487	1	48	993	003	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.111
2487	1	48	993	004	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.123
2487	1	48	993	005	Non Pressure Parts	BEND DUCT WALL	1.000	NO	0.325
2487	1	48	993	006	Non Pressure Parts	BEND DUCT WALL	1.000	NO	0.325
2487	1	48	993	007	Non Pressure Parts	BEND DUCT WALL	1.000	NO	0.237
2487	1	48	993	008	Non Pressure Parts	BEND DUCT WALL	1.000	NO	0.237
2487	1	48	993	009	Non Pressure Parts	DOOR WALL	1.000	NO	0.128
2487	1	48	993	010	Non Pressure Parts	DOOR WALL	1.000	NO	0.163
2487	1	48	993	011	Non Pressure Parts	DOOR WALL	1.000	NO	0.163

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2487	1	48	993	012	Non Pressure Parts	DOOR WALL	1.000	NO	0.128
2487	1	48	993	013	Non Pressure Parts	DOOR WALL	1.000	NO	0.163
2487	1	48	993	014	Non Pressure Parts	DOOR WALL	1.000	NO	0.163
2487	1	48	993	015	Non Pressure Parts	DOOR FRAME	2.000	NO	0.593
2487	1	48	993	016	Non Pressure Parts	MAN HOLE DOOR	15.000	NO	1.118
2487	1	48	993	017	Non Pressure Parts	SLIDE BEARING PLATE(ASBESTOS FREE)	30.000	NO	0.136
2487	1	48	993	018	Non Pressure Parts	GRAB BAR-1	15.000	NO	0.051
2487	1	48	993	019	Non Pressure Parts	GRAB BAR-2	15.000	NO	0.129
2487	1	48	993	020	Non Pressure Parts	""PIPE-1 DIA 457.2X6.4,668"	15.000	NO	0.713
2487	1	48	993	021	Non Pressure Parts	CARBON FIBRE/CERMC FIBRE GLND PKNG 6MM	20.000	M	0.001

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2487	1	48	993	022	Non Pressure Parts	PLATE 16.0;2500X1000	2.000	NO	0.628
2487	1	48	993	023	Non Pressure Parts	PLATE 7.00;1500X6300	13.000	NO	6.751
2487	1	48	993	024	Non Pressure Parts	PLATE 12.0 MM - IS2062E250A	1.000	NO	0.236
2487	1	48	993	025	Non Pressure Parts	PLATE 7;SA387GR12CL2;2500X1500	4.000	NO	0.824
2487	1	48	993	026	Non Pressure Parts	PLATE 10 MM	2.000	NO	1.178
2487	1	48	993	027	Non Pressure Parts	ERW PIPE NB 80 HEAVY- IS1239	10.000	NO	0.591
2487	1	48	993	028	Non Pressure Parts	ANGLE 75 X 75 X 6 -RM	100.000	M	0.680
2487	1	48	993	029	Non Pressure Parts	CHANNEL 200 :RM;30M	40.000	M	0.892
2487	1	48	993	030	Non Pressure Parts	CHANNEL 150;RM	60.000	M	1.008
2487	1	48	993	031	Non Pressure Parts	CHANNEL 300;RM	60.000	M	2.178

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2487	1	48	993	032	Non Pressure Parts	CHANNEL 100;RM	100.000	M	0.956
2487	1	48	993	033	Non Pressure Parts	BEAM 200;RM	30.000	M	0.762
2487	1	48	993	034	Non Pressure Parts	BEAM 250 ;RM	30.000	M	1.119
2487	1	48	993	035	Non Pressure Parts	BEAM 300;RM	30.000	M	1.380
2487	1	48	993	036	Non Pressure Parts	PLATE 25.0 MM - IS2062E250BR	1.000	NO	0.736
2487	1	48	993	037	Non Pressure Parts	PLATE 32.0 MM - IS2062E250BR	1.000	NO	0.502
2487	1	48	993	038	Non Pressure Parts	DIA 63MM-SA105	3.000	NO	0.441
2487	1	48	993	039	Non Pressure Parts	HEX HD SCRU-M12X40 -4.6-IS1363P2	300.000	NO	0.015
2487	1	48	993	040	Non Pressure Parts	NUT -M12 -CL4-IS1363P3	300.000	NO	0.006
2487	1	48	993	041	Non Pressure Parts	PUN WASHER-M12 -IS2016-A	300.000	NO	0.003

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2487	1	48	993	042	Non Pressure Parts	HEX HD SCR-U-M16X45 -4.6-IS1363P2	600.000	NO	0.060
2487	1	48	993	043	Non Pressure Parts	NUT -M16 -CL4-IS1363P3	600.000	NO	0.018
2487	1	48	993	044	Non Pressure Parts	PUN WASHER-M16 -IS2016-A	100.000	NO	0.001
2487	1	48	993	045	Non Pressure Parts	HEX HD SCR-U-M20X65 -4.6-IS1363P2	50.000	NO	0.011
2487	1	48	993	046	Non Pressure Parts	NUT -M20 -CL4-IS1363P3	50.000	NO	0.004
2487	1	48	993	047	Non Pressure Parts	PUN WASHER-M20 -IS2016-A	50.000	NO	0.001
2487	1	48	993	048	Non Pressure Parts	HEX HD SCR-U-M16X55 -4.6-IS1363P2	25.000	NO	0.003
2487	1	48	993	049	Non Pressure Parts	PLATE 20	225.000	M2	35.325
2487	1	99	400	001	Non Pressure Parts	ELEC.TWH CAP.1.0T LIT:26.000M-APH ELE.	1.000	NO	1.300
2487	1	99	400	002	Non Pressure Parts	DSL-CABLE TROLLEY TYSL-CABLE TROLLEY TYP	1.000	NO	0.500
2487	1	SS	391	001	Structure	BST391-101 PLT40*400	2.000	NO	0.559
2487	1	SS	391	002	Structure	BST391-102 PLT40*400	2.000	NO	2.919

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2487	1	SS	391	003	Structure	BST391-103 PLT40*400	2.000	NO	3.658
2487	1	SS	391	004	Structure	BST391-104 PLT40*400	4.000	NO	5.055
2487	1	SS	391	005	Structure	POH391-101 ISMB150	2.000	NO	0.016
2487	1	SS	391	006	Structure	SS391-101 ISMB200	2.000	NO	0.152
2487	1	SS	391	007	Structure	SS391-102 ISMB200	2.000	NO	0.062
2487	1	SS	391	008	Structure	SS391-103 ISMB150	4.000	NO	0.060
2487	1	SS	391	009	Structure	SS391-104 ISMB150	4.000	NO	0.059
2487	1	SS	391	010	Structure	SS391-105 ISMC150	1.000	NO	0.020
2487	1	SS	391	011	Structure	SS391-106 ISMC150	1.000	NO	0.020
2487	1	SS	391	012	Structure	SS391-107 ISMB150	4.000	NO	0.071
2487	1	SS	391	013	Structure	SS391-108 ISMB200	2.000	NO	0.147
2487	1	SS	391	014	Structure	SS391-109 ISMB200	4.000	NO	0.263
2487	1	SS	391	015	Structure	SS391-110 ISMB200	2.000	NO	0.061
2487	1	SS	391	016	Structure	SS391-111 ISMB150	1.000	NO	0.016
2487	1	SS	391	017	Structure	SS391-112 ISMB150	1.000	NO	0.016
2487	1	SS	391	018	Structure	SS391-113 ISMB200	2.000	NO	0.175
2487	1	SS	391	019	Structure	SS391-114 ISMB150	4.000	NO	0.066
2487	1	SS	391	020	Structure	SS391-115 ISMB200	1.000	NO	0.070
2487	1	SS	391	021	Structure	SS391-116 ISMB200	1.000	NO	0.070
2487	1	SS	391	022	Structure	SS391-117 ISMB150	1.000	NO	0.011
2487	1	SS	391	023	Structure	SS391-118 ISMB150	1.000	NO	0.011
2487	1	SS	391	024	Structure	SS391-119 ISMB150	10.000	NO	0.171
2487	1	SS	391	025	Structure	SS391-120 ISMB350	2.000	NO	0.593
2487	1	SS	391	026	Structure	SS391-121 ISMB200	1.000	NO	0.055
2487	1	SS	391	027	Structure	SS391-122 ISMB200	1.000	NO	0.055
2487	1	SS	391	028	Structure	SS391-123 ISMB150	1.000	NO	0.014
2487	1	SS	391	029	Structure	SS391-124 ISMB150	1.000	NO	0.014
2487	1	SS	391	030	Structure	SS391-125 ISMB150	2.000	NO	0.034

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2487	1	SS	391	031	Structure	SS391-126 ISMB250	1.000	NO	0.147
2487	1	SS	391	032	Structure	SS391-127 ISMB250	1.000	NO	0.147
2487	1	SS	391	033	Structure	SS391-128 ISMB200	1.000	NO	0.040
2487	1	SS	391	034	Structure	SS391-129 ISMB200	1.000	NO	0.040
2487	1	SS	391	035	Structure	SS391-130 ISMB350	2.000	NO	0.588
2487	1	SS	391	036	Structure	SS391-131 ISMB200	1.000	NO	0.028
2487	1	SS	391	037	Structure	SS391-132 ISMB150	1.000	NO	0.017
2487	1	SS	391	038	Structure	SS391-133 ISMB150	1.000	NO	0.014
2487	1	SS	391	039	Structure	SS391-134 ISMB150	1.000	NO	0.014
2487	1	SS	391	040	Structure	SS391-135 ISMB200	1.000	NO	0.079
2487	1	SS	391	041	Structure	SS391-136 ISMB200	1.000	NO	0.079
2487	1	SS	391	042	Structure	SS391-137 ISMB150	1.000	NO	0.032
2487	1	SS	391	043	Structure	SS391-138 ISMB150	1.000	NO	0.032
2487	1	SS	391	044	Structure	SS391-139 ISMB200	1.000	NO	0.043
2487	1	SS	391	045	Structure	SS391-140 ISMB150	1.000	NO	0.026
2487	1	SS	391	046	Structure	SS391-141 ISMB150	1.000	NO	0.014
2487	1	SS	391	047	Structure	SS391-142 ISMB150	1.000	NO	0.014
2487	1	SS	391	048	Structure	SS391-143 ISMB300	6.000	NO	1.149
2487	1	SS	391	049	Structure	SS391-144 ISMB150	8.000	NO	0.059
2487	1	SS	391	050	Structure	SS391-145 ISMB150	2.000	NO	0.019
2487	1	SS	391	051	Structure	SS391-146 ISMB150	2.000	NO	0.019
2487	1	SS	391	052	Structure	SS391-147 ISMB150	6.000	NO	0.159
2487	1	SS	391	053	Structure	SS391-148 ISMB350	2.000	NO	0.590
2487	1	SS	391	054	Structure	SS391-149 ISMB150	4.000	NO	0.060
2487	1	SS	391	055	Structure	SS391-150 ISMB150	6.000	NO	0.116
2487	1	SS	391	056	Structure	SS391-151 ISMB150	6.000	NO	0.062
2487	1	SS	391	057	Structure	SS391-152 ISMB150	2.000	NO	0.050
2487	1	SS	391	058	Structure	SS391-153 ISMB150	2.000	NO	0.030

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2487	1	SS	391	059	Structure	SS391-154 ISMB150	6.000	NO	0.089
2487	1	SS	391	060	Structure	SS391-155 ISMB150	2.000	NO	0.016
2487	1	SS	391	061	Structure	SS391-156 ISMB200	2.000	NO	0.043
2487	1	SS	391	062	Structure	SS391-157 WB700X300-32/16	2.000	NO	5.534
2487	1	SS	391	063	Structure	SS391-158 WB500X300-36/20	2.000	NO	1.785
2487	1	SS	391	064	Structure	SS391-159 WB400X250-20/16	4.000	NO	1.697
2487	1	SS	391	065	Structure	SS391-160 BC150	2.000	NO	0.076
2487	1	SS	391	066	Structure	SS391-161 BC200	2.000	NO	0.101
2487	1	SS	391	067	Structure	SS391-162 BC150	4.000	NO	0.153
2487	1	SS	391	068	Structure	SS391-194 PLT25*250	8.000	NO	0.216
2487	1	SS	391	069	Structure	PLATE 16	5.000	NO	0.186
2487	1	SS	391	070	Structure	POH391-102 ISMB250	2.000	NO	0.043
2487	1	SS	391	071	Structure	POH391-103 ISMB200	2.000	NO	0.024
2487	1	SS	391	072	Structure	POH391-104 ISMB200	4.000	NO	0.252
2487	1	SS	391	073	Structure	POH391-105 ISMB200	4.000	NO	0.249
2487	1	SS	391	074	Structure	POH391-106 ISMB200	2.000	NO	0.058
2487	1	SS	391	075	Structure	POH391-107 ISMB150	4.000	NO	0.078
2487	1	SS	391	076	Structure	POH391-108 ISMB400	8.000	NO	0.949
2487	1	SS	391	077	Structure	SS391-163 ISMB300	2.000	NO	0.242
2487	1	SS	391	078	Structure	SS391-164 ISMB200	4.000	NO	0.202
2487	1	SS	391	079	Structure	SS391-165 ISMB150	6.000	NO	0.094
2487	1	SS	391	080	Structure	SS391-166 ISMB200	2.000	NO	0.139
2487	1	SS	391	081	Structure	SS391-167 ISMB300	2.000	NO	0.519
2487	1	SS	391	082	Structure	SS391-168 ISMB200	2.000	NO	0.053
2487	1	SS	391	083	Structure	SS391-169 ISMB150	2.000	NO	0.024
2487	1	SS	391	084	Structure	SS391-170 ISMB200	1.000	NO	0.031

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2487	1	SS	391	085	Structure	SS391-171 ISMB200	1.000	NO	0.030
2487	1	SS	391	086	Structure	SS391-172 ISMB200	2.000	NO	0.138
2487	1	SS	391	087	Structure	SS391-173 ISMB200	4.000	NO	0.198
2487	1	SS	391	088	Structure	SS391-174 ISMB200	2.000	NO	0.104
2487	1	SS	391	089	Structure	SS391-175 ISMB150	4.000	NO	0.060
2487	1	SS	391	090	Structure	SS391-176 ISMB150	2.000	NO	0.030
2487	1	SS	391	091	Structure	SS391-177 ISMB150	4.000	NO	0.081
2487	1	SS	391	092	Structure	SS391-178 ISMB200	4.000	NO	0.106
2487	1	SS	391	093	Structure	SS391-179 WB700X300-36/25	1.000	NO	3.573
2487	1	SS	391	094	Structure	SS391-180 WB700X300-36/25	1.000	NO	3.573
2487	1	SS	391	095	Structure	SS391-181 WB700X300-40/32	1.000	NO	0.802
2487	1	SS	391	096	Structure	SS391-182 ISMB150	2.000	NO	0.030
2487	1	SS	391	097	Structure	SS391-183 WB700X300-40/32	1.000	NO	3.217
2487	1	SS	391	098	Structure	SS391-184 WB700X300-40/32	1.000	NO	3.217
2487	1	SS	391	099	Structure	SS391-185 WB700X300-40/32	1.000	NO	0.802
2487	1	SS	391	100	Structure	SS391-186 ISMB600	4.000	NO	0.626
2487	1	SS	391	101	Structure	SS391-187 ISMB400	3.000	NO	0.193
2487	1	SS	391	102	Structure	SS391-188 ISMB400	1.000	NO	0.064
2487	1	SS	391	103	Structure	SS391-189 WB700X300-36/25	1.000	NO	0.166
2487	1	SS	391	104	Structure	SS391-190 ISMB150	4.000	NO	0.065
2487	1	SS	391	105	Structure	SS391-191 ISMB150	2.000	NO	0.033
2487	1	SS	391	106	Structure	SS391-192 WB700X300-36/25	2.000	NO	0.303

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2487	1	SS	391	107	Structure	SS391-193 WB700X300-36/25	2.000	NO	7.142
2487	1	SS	391	108	Structure	SS391-195 ISMB200	4.000	NO	0.147
2487	1	SS	391	109	Structure	SS391-196 ISA100X100X10	1.000	NO	0.089
2487	1	SS	391	110	Structure	SS391-197 ISMB300	2.000	NO	0.141
2487	1	SS	391	111	Structure	SS391-198 ISA65X65X6	1.000	NO	0.041
2487	1	SS	391	112	Structure	SS391-199 ISMB150	2.000	NO	0.022
2487	1	SS	391	113	Structure	SS391-200 ISMB200	2.000	NO	0.193
2487	1	SS	391	114	Structure	SS391-201 ISMB150	2.000	NO	0.013
2487	1	SS	391	115	Structure	SS391-202 ISMB600	2.000	NO	1.055
2487	1	SS	391	116	Structure	SS391-203 ISA200X200X20	1.000	NO	0.551
2487	1	SS	391	117	Structure	SS391-204 ISA200X200X20	1.000	NO	0.551
2487	1	SS	391	118	Structure	SS391-205 WB700X300-20/16	2.000	NO	1.272
2487	1	SS	391	119	Structure	SS391-206 ISMB400	2.000	NO	0.413
2487	1	SS	391	120	Structure	SS391-207 ISMB600	2.000	NO	0.878
2487	1	SS	391	121	Structure	SS391-208 ISA200X200X20	1.000	NO	0.491
2487	1	SS	391	122	Structure	SS391-209 ISA200X200X20	1.000	NO	0.491
2487	1	SS	391	123	Structure	SS391-210 ISA100X100X10	1.000	NO	0.096
2487	1	SS	391	124	Structure	SS391-211 ISA65X65X6	1.000	NO	0.042
2487	1	SS	391	125	Structure	SS391-212 ISMB300	2.000	NO	0.180
2487	1	SS	391	126	Structure	SS391-213 ISA65X65X6	1.000	NO	0.035
2487	1	SS	391	127	Structure	SS391-214 ISA100X100X10	1.000	NO	0.074
2487	1	SS	391	128	Structure	SS391-215 WB700X300-40/32	2.000	NO	8.355
2487	1	SS	391	129	Structure	SS391-216 PLT32*350	4.000	NO	0.654
2487	1	SS	391	130	Structure	SS391-217 WB700X300-40/32	2.000	NO	4.540

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2487	1	SS	391	131	Structure	SS391-218 WB700X300-40/32	1.000	NO	2.352
2487	1	SS	391	132	Structure	SS391-219 WB700X300-40/32	2.000	NO	6.539
2487	1	SS	391	133	Structure	SS391-220 PLT32*650	1.000	NO	0.282
2488	1	08	501	001	Pressure Parts	VERTICAL BUCKSTAY BEAM	2.000	NO	0.474
2488	1	08	501	002	Pressure Parts	ANGLE	4.000	NO	0.032
2488	1	08	501	003	Pressure Parts	ANGLE	8.000	NO	0.035
2488	1	08	501	004	Pressure Parts	HSS BOLT & NUT M 24X 90	24.000	NO	0.014
2488	1	08	501	005	Pressure Parts	WASHER M 24 A (HSFG WASHER)	24.000	NO	0.001
2488	1	08	501	006	Pressure Parts	PLATE 20	1.000	NO	1.884
2488	1	08	501	007	Pressure Parts	ISMC 150	24.000	NO	2.016
2488	1	08	501	008	Pressure Parts	PLATE 12	14.000	NO	0.435
2488	1	08	501	009	Pressure Parts	RETAINER	50.000	NO	0.058
2488	1	08	501	010	Pressure Parts	PLATE 25	3.000	NO	1.766
2488	1	08	501	011	Pressure Parts	PLATE 16	2.000	NO	1.256
2488	1	11	618	001	Pressure Parts	LOOSE TUBE D44.5X6.8	50.000	NO	0.221
2488	1	11	618	002	Pressure Parts	BENT TUBE D44.5X6.8	42.000	NO	0.287

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2488	1	11	618	003	Pressure Parts	SHAPED PLATE 6 THK	180.000	NO	0.035
2488	1	12	903	001	Pressure Parts	TOP & BOTTOM SCALLOP PLATE 6 THK	4.000	NO	0.139
2488	1	12	903	002	Pressure Parts	SIDE PLATE 6 THK	4.000	NO	0.014
2488	1	28	700	001	Insulation	TAPSCREW-ST 4.2X13C	40,000.000	NO	0.040
2488	1	32	410	001	Insulation	FIXING PIN 245 L	2,300.000	NO	0.124
2488	1	32	410	002	Insulation	FIXING PIN 165 L	6,000.000	NO	0.222
2488	1	32	410	003	Insulation	RETAINER TYPE 'A' 4-32-010-01053	7,800.000	NO	0.476
2488	1	32	410	004	Insulation	AL CASING SUPPORT 03-650L	2,800.000	NO	0.420
2488	1	32	410	005	Insulation	WIRE DIA 1.219 MM - GI - IS280	93.000	KG	0.093
2488	1	32	410	006	Insulation	WIRE DIA 0.711 MM - GI - IS280	43.000	KG	0.043
2488	1	32	410	007	Insulation	PLAIN ALUMINIUM SHEET 0.711 MM	1,150.000	M2	2.208
2488	1	32	410	008	Insulation	SHEET 3.15MM-IS1079	8.000	NO	0.297
2488	1	33	421	001	Insulation	WOOL-100KG/CU.M-50MM ONE SIDE GI WIRENET	570.000	M2	3.135
2488	1	33	421	002	Insulation	WOOL-100KG/CU.M-60MM-ONE SIDE GI WIRENET	590.000	M2	3.835
2488	1	33	421	003	Insulation	WOOL-100KG/CU.M-50MM-BOTH SIDE GI WIRENE	540.000	M2	3.240
2488	1	33	421	004	Insulation	WOOL-150KG/CU.M-60MM-ONE SIDE GI WIRENET	675.000	M2	6.413
2488	1	33	421	005	Insulation	WOOL-150KG/CU.M-60MM-BOTH SIDE SS WIRENE	215.000	M2	2.150
2488	1	36	394	001	Structure	WELDED ANGLE-01	8.000	NO	6.059

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2488	1	36	394	002	Structure	WELDED ANGLE-02	8.000	NO	8.036
2488	1	36	394	003	Structure	WELDED ANGLE-03	8.000	NO	6.474
2488	1	36	394	004	Structure	WELDED ANGLE-04	8.000	NO	5.274
2488	1	36	394	005	Structure	WELDED ANGLE-05	8.000	NO	2.277
2488	1	36	394	006	Structure	WELDED ANGLE-06	8.000	NO	3.049
2488	1	36	394	007	Structure	WELDED ANGLE-07	8.000	NO	3.655
2488	1	36	394	008	Structure	WELDED ANGLE-08	4.000	NO	2.554
2488	1	36	394	009	Structure	WELDED ANGLE-09	4.000	NO	3.378
2488	1	36	394	010	Structure	WELDED ANGLE-10	4.000	NO	2.722
2488	1	36	394	011	Structure	WELDED ANGLE-11	4.000	NO	3.080
2488	1	36	394	012	Structure	WELDED ANGLE-12	4.000	NO	2.023
2488	1	36	394	013	Structure	WELDED ANGLE-13	4.000	NO	1.595
2488	1	36	394	014	Structure	WELDED ANGLE-14	4.000	NO	1.967
2488	1	36	394	015	Structure	PLATE 16	8.000	NO	2.942
2488	1	36	394	016	Structure	PLATE 25	4.000	NO	5.313
2488	1	36	394	017	Structure	PLATE 25	12.000	NO	6.594
2488	1	36	394	018	Structure	PLATE 25	4.000	NO	0.758
2488	1	36	394	019	Structure	PLATE 32	2.000	NO	1.527
2488	1	36	394	020	Structure	PLATE 16	2.000	NO	0.452
2488	1	36	394	021	Structure	PLATE 12	2.000	NO	0.678
2488	1	36	395	001	Structure	FB395-102 WB350X350-25/16	1.000	NO	0.999
2488	1	36	395	002	Structure	FB395-103 WB500X250-25/16	2.000	NO	0.808
2488	1	36	395	004	Structure	FB395-105 WB400X300-32/20	6.000	NO	6.779
2488	1	36	395	006	Structure	FB395-108 WB500X250-25/16	1.000	NO	0.871

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2488	1	36	395	007	Structure	FB395-110 WB500X250-25/16	1.000	NO	0.895
2488	1	36	395	008	Structure	FB395-111 WB400X300-32/20	8.000	NO	11.544
2488	1	36	395	009	Structure	FB395-112 WB600X300-25/16	2.000	NO	2.600
2488	1	36	395	011	Structure	FB395-114 WB400X250-20/16	1.000	NO	0.539
2488	1	36	395	012	Structure	FB395-115 WB400X250-20/16	1.000	NO	0.456
2488	1	36	395	013	Structure	FB395-116 WB350X350-25/16	1.000	NO	0.999
2488	1	36	395	014	Structure	FB395-117 WB500X250-25/16	1.000	NO	0.895
2488	1	36	395	015	Structure	FB395-118 WB500X250-25/16	1.000	NO	0.871
2488	1	36	395	016	Structure	FH6L:395-101 WBOX-300X180-32/32	1.000	NO	2.222
2488	1	36	395	017	Structure	FH6L:395-102 WBOX-300X180-32/32	1.000	NO	1.682
2488	1	36	395	018	Structure	FH6R:395-101 WBOX-300X180-32/32	1.000	NO	2.222
2488	1	36	395	019	Structure	FH6R:395-102 WBOX-300X180-32/32	1.000	NO	1.682
2488	1	36	395	020	Structure	MR395-101 WB450X190-16/10	1.000	NO	0.133
2488	1	36	395	021	Structure	MR395-102 WB450X190-16/10	1.000	NO	0.133
2488	1	36	395	022	Structure	MR395-103 WB450X190-16/10	1.000	NO	0.320
2488	1	36	395	023	Structure	MR395-104 WB450X190-16/10	1.000	NO	0.320

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2488	1	36	395	024	Structure	MR395-105 WB450X190-16/10	1.000	NO	0.377
2488	1	36	395	025	Structure	MR395-106 WB450X190-16/10	1.000	NO	0.377
2488	1	36	395	026	Structure	MR395-107 WB450X190-16/10	1.000	NO	0.442
2488	1	36	395	027	Structure	MR395-108 WB450X190-16/10	1.000	NO	0.442
2488	1	36	395	028	Structure	MR395-109 WB450X190-16/10	1.000	NO	0.672
2488	1	36	395	029	Structure	MR395-110 WB450X190-16/10	1.000	NO	0.672
2488	1	36	395	030	Structure	MR395-111 WB450X190-16/10	1.000	NO	0.096
2488	1	36	395	031	Structure	MR395-112 WB450X190-16/10	1.000	NO	0.096
2488	1	36	395	032	Structure	P395-101 PLT10*280	4.000	NO	0.879
2488	1	36	395	034	Structure	VB395-101 WBOX200X200-16/16	2.000	NO	1.258
2488	1	36	395	035	Structure	VB395-102 WBOX200X200-16/16	2.000	NO	1.186
2488	1	36	395	036	Structure	VB395-103 WBOX200X200-16/16	2.000	NO	1.262
2488	1	36	395	037	Structure	VB395-104 WBOX200X200-16/16	2.000	NO	1.388
2488	1	36	395	038	Structure	VB395-105 WBOX200X200-16/16	2.000	NO	1.071
2488	1	36	395	039	Structure	VB395-106 WBOX200X200-16/16	2.000	NO	0.901
2488	1	36	395	040	Structure	VB395-107 WBOX200X200-16/16	2.000	NO	1.035

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2488	1	36	395	041	Structure	VB395-108 WBOX200X200-16/16	2.000	NO	0.785
2488	1	36	395	042	Structure	VB395-109 WBOX200X200-16/16	2.000	NO	0.813
2488	1	36	396	001	Structure	SLIDE BEARING PLATE(ASBESTOS FREE)	5.000	NO	0.023
2488	1	36	700	001	Structure	M24X70 HSFG BOLTS & NUTS GRADE 8.8	180.000	NO	0.096
2488	1	36	700	002	Structure	M24 WASHER GRADE 8.8	360.000	NO	0.015
2488	1	36	814	001	Structure	FLOOR GRILL 25 X 450X 995	75.000	NO	1.290
2488	1	36	814	002	Structure	FLOOR GRILL 25 X 920X 995	85.000	NO	2.854
2488	1	36	814	003	Structure	FLOOR GRILL 25 X 1050 X 995	120.000	NO	4.568
2488	1	36	814	004	Structure	FLOOR GRILL 25 X 1150 X 995	168.000	NO	6.978
2488	1	36	814	005	Structure	FLOOR GRILL 25 X 1300 X 995	90.000	NO	4.201
2488	1	36	814	006	Structure	GUARD PLATE 5	890.000	NO	6.987
2488	1	36	814	007	Structure	SH.3.15	60.000	NO	0.037
2488	1	36	814	008	Structure	EFFG 25 X 6000 X 995	10.000	NO	2.276
2488	1	36	821	001	Structure	STAIR FROM EL.48.200TO EL.50.100	2.000	NO	0.534
2488	1	36	821	002	Structure	V.L FROM EL.0 TO EL.4.400	1.000	NO	0.084
2488	1	36	821	003	Structure	V.L FROM EL.4.400 TOEL.8.800	1.000	NO	0.082
2488	1	36	821	004	Structure	V.L FROM EL.11.500 TO EL.13.800	1.000	NO	0.049
2488	1	36	821	005	Structure	V.L FROM EL.13.100 TO EL.15.400	1.000	NO	0.049

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2488	1	36	821	006	Structure	V.L FROM EL.27.800 TO EL.28.725	4.000	NO	0.107
2488	1	36	821	007	Structure	V.L FROM EL.27.800 TO EL.30.100	2.000	NO	0.098
2488	1	36	821	008	Structure	V.L FROM EL.57.800 TO EL.58.500	2.000	NO	0.046
2488	1	36	821	009	Structure	V.L FROM EL.61.350 TO EL.62.850	2.000	NO	0.072
2488	1	36	850	001	Structure	HANDRAIL POST FOR PLATFORM	675.000	NO	2.456
2488	1	36	850	002	Structure	ERW TUBE DIA. 42.4X3.2	675.000	NO	3.139
2488	1	36	850	003	Structure	HANDRAIL POST FOR STAIR	50.000	NO	0.185
2488	1	36	850	004	Structure	ERW TUBE DIA 42.4X3.2	50.000	NO	0.233
2488	1	36	850	005	Structure	90 BEND TUBE DIA 42.4X3.2	526.000	NO	0.745
2488	1	36	850	006	Structure	135DEG BENDTUBE D42.4X3.2	150.000	NO	0.153
2488	1	36	850	007	Structure	135DEG BENDTUBE D42.4X3.2	100.000	NO	0.118
2488	1	36	850	008	Structure	""C"" BEND TUBE" D42.4X3.2	10.000	NO	0.017
2488	1	36	850	009	Structure	""C"" BEND TUBE" D42.4X3.2	10.000	NO	0.031
2488	1	36	850	010	Structure	SPL.BEND TUBE D42.4X3.2	10.000	NO	0.024
2488	1	36	850	011	Structure	ERW TUBE DIA 42.4X3.2	4,106.000	M	12.729
2488	1	36	850	012	Structure	ISA 65X65X6	30.000	M	0.174
2488	1	36	993	001	Structure	ISMB 125X70	6.000	NO	0.804
2488	1	36	993	002	Structure	ISMB 150X75	6.000	NO	0.900
2488	1	36	993	003	Structure	ISMB 200X100	6.000	NO	1.524
2488	1	36	993	004	Structure	UB 254X146	6.000	NO	1.332
2488	1	36	993	005	Structure	UB 305X166	4.000	NO	1.106

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2488	1	36	993	006	Structure	ISMB 350X140	6.000	NO	2.515
2488	1	36	993	007	Structure	UB 406X178	6.000	NO	2.164
2488	1	36	993	008	Structure	NPB 450X190	8.000	NO	3.725
2488	1	36	993	009	Structure	NPB 500X200	4.000	NO	2.177
2488	1	36	993	010	Structure	NPB 600X220	6.000	NO	4.406
2488	1	36	993	011	Structure	ISMC 200X75	6.000	NO	1.338
2488	1	36	993	012	Structure	ISMC 250X82	5.000	NO	1.026
2488	1	36	993	013	Structure	ISMC 300X90	3.000	NO	1.089
2488	1	36	993	014	Structure	ISA 65X65X6	8.000	NO	0.278
2488	1	36	993	015	Structure	ISA 80X80X8	3.000	NO	0.288
2488	1	36	993	016	Structure	ISA 100X100X10	6.000	NO	0.715
2488	1	36	993	017	Structure	PLATE 10	5.000	NO	2.453
2488	1	36	993	018	Structure	PLATE 25	4.000	NO	2.944
2488	1	48	342	001	Non Pressure Parts	DUCT WALL	2.000	NO	0.565
2488	1	48	342	002	Non Pressure Parts	DUCT WALL	2.000	NO	0.564
2488	1	48	342	003	Non Pressure Parts	DUCT WALL	4.000	NO	0.635
2488	1	48	342	004	Non Pressure Parts	TRUSS	2.000	NO	0.071
2488	1	48	342	005	Non Pressure Parts	DUCTWALL	2.000	NO	0.289

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2488	1	48	342	006	Non Pressure Parts	DUCTWALL	2.000	NO	0.289
2488	1	48	342	007	Non Pressure Parts	DUCTWALL	2.000	NO	0.540
2488	1	48	342	008	Non Pressure Parts	DUCTWALL	2.000	NO	0.540
2488	1	48	342	009	Non Pressure Parts	GUSSET PLATE	4.000	NO	0.026
2488	1	48	342	010	Non Pressure Parts	TRUSS	4.000	NO	0.141
2488	1	48	342	011	Non Pressure Parts	TRUSS	2.000	NO	0.071
2488	1	48	342	012	Non Pressure Parts	DUCTWALL	4.000	NO	0.135
2488	1	48	342	013	Non Pressure Parts	DUCTWALL	4.000	NO	0.075
2488	1	48	342	014	Non Pressure Parts	DUCT WALL	2.000	NO	2.401
2488	1	48	342	015	Non Pressure Parts	DUCTWALL	2.000	NO	2.344

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2488	1	48	344	001	Non Pressure Parts	EXPANSION BELLOWS-NON METALLIC	2.000	NO	5.500
2488	1	48	345	001	Non Pressure Parts	RESTRAINT	4.000	NO	2.309
2488	1	48	345	002	Non Pressure Parts	FAB-BEAM	4.000	NO	3.928
2488	1	48	345	003	Non Pressure Parts	PLT 16;386x350	4.000	NO	0.068
2488	1	48	345	004	Non Pressure Parts	STOPPER	8.000	NO	0.051
2488	1	48	345	005	Non Pressure Parts	HANGER ASSEMBLY	4.000	NO	0.580
2488	1	48	352	001	Non Pressure Parts	STRAIGHT DUCT WALL	2.000	NO	0.601
2488	1	48	352	002	Non Pressure Parts	STRAIGHT DUCT WALL	2.000	NO	0.601
2488	1	48	352	003	Non Pressure Parts	STRAIGHT DUCT WALL	4.000	NO	0.453
2488	1	48	352	004	Non Pressure Parts	TRUSS	1.000	NO	0.023

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2488	1	48	352	005	Non Pressure Parts	TRUSS	2.000	NO	0.087
2488	1	48	352	006	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	0.476
2488	1	48	352	007	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	0.476
2488	1	48	352	008	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	1.209
2488	1	48	352	009	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	1.391
2488	1	48	352	010	Non Pressure Parts	TRUSS	1.000	NO	0.023
2488	1	48	352	011	Non Pressure Parts	TRUSS	2.000	NO	0.087
2488	1	48	352	012	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	0.476
2488	1	48	352	013	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	0.476
2488	1	48	352	014	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	1.391

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2488	1	48	352	015	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	1.209
2488	1	48	352	016	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.793
2488	1	48	352	017	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.016
2488	1	48	352	018	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.801
2488	1	48	352	019	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.205
2488	1	48	352	020	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.058
2488	1	48	352	021	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.353
2488	1	48	352	022	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.390
2488	1	48	352	023	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.174
2488	1	48	352	024	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	2.236

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2488	1	48	352	025	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.647
2488	1	48	352	026	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.756
2488	1	48	352	027	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.181
2488	1	48	352	028	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.181
2488	1	48	352	029	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.982
2488	1	48	352	030	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.839
2488	1	48	352	031	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.625
2488	1	48	352	032	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.077
2488	1	48	352	033	Non Pressure Parts	TRUSS	1.000	NO	0.042
2488	1	48	352	034	Non Pressure Parts	TRUSS	1.000	NO	0.033

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2488	1	48	352	035	Non Pressure Parts	TRUSS	1.000	NO	0.033
2488	1	48	352	036	Non Pressure Parts	TRUSS	2.000	NO	0.066
2488	1	48	352	037	Non Pressure Parts	GUSSET PLATE	2.000	NO	0.014
2488	1	48	352	038	Non Pressure Parts	GUSSET PLATE	1.000	NO	0.008
2488	1	48	352	039	Non Pressure Parts	TRUSS	1.000	NO	0.028
2488	1	48	352	040	Non Pressure Parts	TRUSS	1.000	NO	0.028
2488	1	48	352	041	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.793
2488	1	48	352	042	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.016
2488	1	48	352	043	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.801
2488	1	48	352	044	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.205

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2488	1	48	352	045	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.058
2488	1	48	352	046	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.353
2488	1	48	352	047	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.390
2488	1	48	352	048	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.174
2488	1	48	352	049	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	2.237
2488	1	48	352	050	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.647
2488	1	48	352	051	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.756
2488	1	48	352	052	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.181
2488	1	48	352	053	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.181
2488	1	48	352	054	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	1.625

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2488	1	48	352	055	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.982
2488	1	48	352	056	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.839
2488	1	48	352	057	Non Pressure Parts	ELBOW-T-DUCT WALL	1.000	NO	0.077
2488	1	48	352	058	Non Pressure Parts	GUSSET PLATE	2.000	NO	0.014
2488	1	48	352	059	Non Pressure Parts	GUSSET PLATE	1.000	NO	0.008
2488	1	48	352	060	Non Pressure Parts	TRUSS	1.000	NO	0.033
2488	1	48	352	061	Non Pressure Parts	TRUSS	1.000	NO	0.033
2488	1	48	352	062	Non Pressure Parts	TRUSS	2.000	NO	0.066
2488	1	48	352	063	Non Pressure Parts	TRUSS	1.000	NO	0.042
2488	1	48	352	064	Non Pressure Parts	TRUSS	1.000	NO	0.028

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2488	1	48	352	065	Non Pressure Parts	TRUSS	1.000	NO	0.028
2488	1	48	352	066	Non Pressure Parts	STRAIGHT DUCT WALL	4.000	NO	0.325
2488	1	48	352	067	Non Pressure Parts	STRAIGHT DUCT WALL	2.000	NO	0.112
2488	1	48	352	068	Non Pressure Parts	STRAIGHT DUCT WALL	2.000	NO	0.112
2488	1	48	352	069	Non Pressure Parts	STRAIGHT DUCT WALL	2.000	NO	2.349
2488	1	48	352	070	Non Pressure Parts	STRAIGHT DUCT WALL	2.000	NO	2.438
2488	1	48	352	071	Non Pressure Parts	BLANKING PLATE	2.000	NO	3.278
2488	1	48	354	001	Non Pressure Parts	NON-METALLIC EXPANSION JOINT	2.000	NO	3.500
2488	1	48	355	001	Non Pressure Parts	BEAM-1	2.000	NO	0.056
2488	1	48	355	002	Non Pressure Parts	BEAM-2	4.000	NO	0.944

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2488	1	48	355	003	Non Pressure Parts	FAB BOX-1	4.000	NO	2.368
2488	1	48	355	004	Non Pressure Parts	FAB BOX-2	4.000	NO	2.069
2488	1	48	355	005	Non Pressure Parts	ISMB200;1107	2.000	NO	0.056
2488	1	48	355	006	Non Pressure Parts	ISMB200;225	2.000	NO	0.011
2488	1	48	355	007	Non Pressure Parts	ISMB200;594	2.000	NO	0.030
2488	1	48	355	008	Non Pressure Parts	ISMB200;794	2.000	NO	0.040
2488	1	48	355	009	Non Pressure Parts	BEAM-3	4.000	NO	2.273
2488	1	48	355	010	Non Pressure Parts	BEAM-4	2.000	NO	1.175
2488	1	48	355	011	Non Pressure Parts	PLT 16;300x200	4.000	NO	0.030
2488	1	48	355	012	Non Pressure Parts	PLT 16;492x400	4.000	NO	0.099

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2488	1	48	355	013	Non Pressure Parts	PLT 16;436x175	4.000	NO	0.038
2488	1	48	355	014	Non Pressure Parts	PLT 16;400x240	2.000	NO	0.024
2488	1	48	355	015	Non Pressure Parts	RESTRAINT-1	1.000	NO	0.020
2488	1	48	355	016	Non Pressure Parts	RESTRAINT-2	1.000	NO	0.020
2488	1	48	355	017	Non Pressure Parts	RESTRAINT-3	2.000	NO	0.058
2488	1	48	355	018	Non Pressure Parts	STOPPER	8.000	NO	0.033
2488	1	48	355	019	Non Pressure Parts	LUG PLATE-1	17.000	NO	0.034
2488	1	48	355	020	Non Pressure Parts	LUG PLATE-2	7.000	NO	0.013
2488	1	48	355	021	Non Pressure Parts	ISMB200;5314	2.000	NO	0.270
2488	1	48	362	001	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	0.170

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2488	1	48	362	002	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	0.171
2488	1	48	362	003	Non Pressure Parts	TRUSS	2.000	NO	0.058
2488	1	48	362	004	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	1.626
2488	1	48	362	005	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	1.618
2488	1	48	362	006	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	0.170
2488	1	48	362	007	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	0.171
2488	1	48	362	008	Non Pressure Parts	TRUSS	2.000	NO	0.058
2488	1	48	362	009	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	1.626
2488	1	48	362	010	Non Pressure Parts	STRAIGHT DUCT WALL	1.000	NO	1.618
2488	1	48	362	011	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.930

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2488	1	48	362	012	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.646
2488	1	48	362	013	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.135
2488	1	48	362	014	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	1.512
2488	1	48	362	015	Non Pressure Parts	TRUSS	1.000	NO	0.025
2488	1	48	362	016	Non Pressure Parts	TRUSS	1.000	NO	0.018
2488	1	48	362	017	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	1.583
2488	1	48	362	018	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	1.512
2488	1	48	362	019	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.930
2488	1	48	362	020	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.646
2488	1	48	362	021	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.135

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2488	1	48	362	022	Non Pressure Parts	TRUSS	1.000	NO	0.025
2488	1	48	362	023	Non Pressure Parts	TRUSS	1.000	NO	0.018
2488	1	48	362	024	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	1.583
2488	1	48	362	025	Non Pressure Parts	STRAIGHT DUCT WALL	4.000	NO	0.818
2488	1	48	362	026	Non Pressure Parts	TRUSS	2.000	NO	0.051
2488	1	48	362	027	Non Pressure Parts	STRAIGHT DUCT WALL	4.000	NO	0.810
2488	1	48	362	028	Non Pressure Parts	STRAIGHT DUCT WALL	4.000	NO	0.039
2488	1	48	362	029	Non Pressure Parts	STRAIGHT DUCT WALL	2.000	NO	0.783
2488	1	48	362	030	Non Pressure Parts	STRAIGHT DUCT WALL	4.000	NO	0.033
2488	1	48	362	031	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.095

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2488	1	48	362	032	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.098
2488	1	48	362	033	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.524
2488	1	48	362	034	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.524
2488	1	48	362	035	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.095
2488	1	48	362	036	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.098
2488	1	48	362	037	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.524
2488	1	48	362	038	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.524
2488	1	48	362	039	Non Pressure Parts	BLANKING PLATE	2.000	NO	1.027
2488	1	48	362	040	Non Pressure Parts	SCALLOP PLATE 7.0;614X150	4.000	NO	0.020
2488	1	48	362	041	Non Pressure Parts	SCALLOP PLATE 7.0;6040X150	4.000	NO	0.199

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2488	1	48	364	001	Non Pressure Parts	NON-METALLIC EXPANSION JOINT	2.000	NO	4.000
2488	1	48	365	001	Non Pressure Parts	BEAM-1	2.000	NO	0.035
2488	1	48	365	002	Non Pressure Parts	FAB BOX-1	8.000	NO	2.654
2488	1	48	365	003	Non Pressure Parts	FAB BOX-2	10.000	NO	1.522
2488	1	48	365	004	Non Pressure Parts	BEAM-2	8.000	NO	2.527
2488	1	48	365	005	Non Pressure Parts	ISMB200;643	2.000	NO	0.033
2488	1	48	365	006	Non Pressure Parts	BEAM-3	2.000	NO	0.108
2488	1	48	365	007	Non Pressure Parts	RESTRAINT-1	2.000	NO	0.107
2488	1	48	365	008	Non Pressure Parts	RESTRAINT-2	4.000	NO	0.214
2488	1	48	365	009	Non Pressure Parts	BEAM-4	2.000	NO	0.007

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2488	1	48	365	010	Non Pressure Parts	BEAM-5	2.000	NO	0.221
2488	1	48	365	011	Non Pressure Parts	BEAM-6	4.000	NO	1.024
2488	1	48	365	012	Non Pressure Parts	RESTRAINT-3	2.000	NO	0.136
2488	1	48	365	013	Non Pressure Parts	CHANNEL-1	4.000	NO	0.055
2488	1	48	365	014	Non Pressure Parts	STOPPER-1	4.000	NO	0.013
2488	1	48	365	015	Non Pressure Parts	BEAM-7	2.000	NO	0.029
2488	1	48	365	016	Non Pressure Parts	STOPPER-2	4.000	NO	0.004
2488	1	48	365	017	Non Pressure Parts	STOPPER-3	2.000	NO	0.006
2488	1	48	365	018	Non Pressure Parts	STOPPER-4	2.000	NO	0.006
2488	1	48	365	019	Non Pressure Parts	STOPPER-5	12.000	NO	0.033

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2488	1	48	365	020	Non Pressure Parts	PLT 16;400x240	4.000	NO	0.048
2488	1	48	365	021	Non Pressure Parts	PLT 16;486x350	2.000	NO	0.043
2488	1	48	365	022	Non Pressure Parts	PLT 16;786x190	6.000	NO	0.113
2488	1	48	365	023	Non Pressure Parts	PLT 16;350x200	2.000	NO	0.018
2488	1	48	365	024	Non Pressure Parts	PLT 16;774x190	2.000	NO	0.037
2488	1	48	365	025	Non Pressure Parts	PLT 16;400x200	8.000	NO	0.080
2488	1	48	993	001	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.162
2488	1	48	993	002	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.157
2488	1	48	993	003	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.111
2488	1	48	993	004	Non Pressure Parts	TRANSITION DUCT WALL	1.000	NO	0.123

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2488	1	48	993	005	Non Pressure Parts	BEND DUCT WALL	1.000	NO	0.325
2488	1	48	993	006	Non Pressure Parts	BEND DUCT WALL	1.000	NO	0.325
2488	1	48	993	007	Non Pressure Parts	BEND DUCT WALL	1.000	NO	0.237
2488	1	48	993	008	Non Pressure Parts	BEND DUCT WALL	1.000	NO	0.237
2488	1	48	993	009	Non Pressure Parts	DOOR WALL	1.000	NO	0.128
2488	1	48	993	010	Non Pressure Parts	DOOR WALL	1.000	NO	0.163
2488	1	48	993	011	Non Pressure Parts	DOOR WALL	1.000	NO	0.163
2488	1	48	993	012	Non Pressure Parts	DOOR WALL	1.000	NO	0.128
2488	1	48	993	013	Non Pressure Parts	DOOR WALL	1.000	NO	0.163
2488	1	48	993	014	Non Pressure Parts	DOOR WALL	1.000	NO	0.163

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2488	1	48	993	015	Non Pressure Parts	DOOR FRAME	2.000	NO	0.593
2488	1	48	993	016	Non Pressure Parts	MAN HOLE DOOR	15.000	NO	1.118
2488	1	48	993	017	Non Pressure Parts	SLIDE BEARING PLATE(ASBESTOS FREE)	30.000	NO	0.136
2488	1	48	993	018	Non Pressure Parts	GRAB BAR-1	15.000	NO	0.051
2488	1	48	993	019	Non Pressure Parts	GRAB BAR-2	15.000	NO	0.129
2488	1	48	993	020	Non Pressure Parts	""PIPE-1 DIA 457.2X6.4,668"	5.000	NO	0.238
2488	1	48	993	021	Non Pressure Parts	CARBON FIBRE/CERMC FIBRE GLND PKNG 6MM	20.000	M	0.001
2488	1	48	993	022	Non Pressure Parts	PLATE 16.0;2500X1000	2.000	NO	0.628
2488	1	48	993	023	Non Pressure Parts	PLATE 7.00;1500X6300	13.000	NO	6.751
2488	1	48	993	024	Non Pressure Parts	PLATE 12.0 MM - IS2062E250A	1.000	NO	0.236

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2488	1	48	993	025	Non Pressure Parts	PLATE 7;SA387GR12CL2;2500X1500	4.000	NO	0.824
2488	1	48	993	026	Non Pressure Parts	PLATE 10 MM	2.000	NO	1.178
2488	1	48	993	027	Non Pressure Parts	ERW PIPE NB 80 HEAVY-IS1239	10.000	NO	0.591
2488	1	48	993	028	Non Pressure Parts	ANGLE 75 X 75 X 6 -RM	100.000	M	0.680
2488	1	48	993	029	Non Pressure Parts	CHANNEL 200 :RM;30M	40.000	M	0.892
2488	1	48	993	030	Non Pressure Parts	CHANNEL 150;RM	60.000	M	1.008
2488	1	48	993	031	Non Pressure Parts	CHANNEL 300;RM	60.000	M	2.178
2488	1	48	993	032	Non Pressure Parts	CHANNEL 100;RM	100.000	M	0.956
2488	1	48	993	033	Non Pressure Parts	BEAM 200;RM	30.000	M	0.762
2488	1	48	993	034	Non Pressure Parts	BEAM 250 ;RM	30.000	M	1.119

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2488	1	48	993	035	Non Pressure Parts	BEAM 300;RM	30.000	M	1.380
2488	1	48	993	036	Non Pressure Parts	PLATE 25.0 MM - IS2062E250BR	1.000	NO	0.736
2488	1	48	993	037	Non Pressure Parts	PLATE 32.0 MM - IS2062E250BR	1.000	NO	0.502
2488	1	48	993	038	Non Pressure Parts	DIA 63MM-SA105	3.000	NO	0.441
2488	1	48	993	039	Non Pressure Parts	HEX HD SCR-U-M12X40 -4.6-IS1363P2	300.000	NO	0.015
2488	1	48	993	040	Non Pressure Parts	NUT -M12 -CL4-IS1363P3	300.000	NO	0.006
2488	1	48	993	041	Non Pressure Parts	PUN WASHER-M12 -IS2016-A	300.000	NO	0.003
2488	1	48	993	042	Non Pressure Parts	HEX HD SCR-U-M16X45 -4.6-IS1363P2	600.000	NO	0.060
2488	1	48	993	043	Non Pressure Parts	NUT -M16 -CL4-IS1363P3	600.000	NO	0.018
2488	1	48	993	044	Non Pressure Parts	PUN WASHER-M16 -IS2016-A	100.000	NO	0.001

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2488	1	48	993	045	Non Pressure Parts	HEX HD SCR-U-M20X65 -4.6-IS1363P2	50.000	NO	0.011
2488	1	48	993	046	Non Pressure Parts	NUT -M20 -CL4-IS1363P3	50.000	NO	0.004
2488	1	48	993	047	Non Pressure Parts	PUN WASHER-M20 -IS2016-A	50.000	NO	0.001
2488	1	48	993	048	Non Pressure Parts	HEX HD SCR-U-M16X55 -4.6-IS1363P2	25.000	NO	0.003
2488	1	48	993	049	Non Pressure Parts	PLATE 20	225.000	M2	35.325
2488	1	99	400	001	Non Pressure Parts	ELEC.TWH CAP.1.0T LIT:26.000M-APH ELE.	1.000	NO	1.300
2488	1	99	400	002	Non Pressure Parts	DSL-CABLE TROLLEY TYE 17.255 M LONG.	1.000	NO	0.500
2488	1	SS	391	001	Structure	BST391-101 PLT40*400	2.000	NO	0.559
2488	1	SS	391	002	Structure	BST391-102 PLT40*400	2.000	NO	2.919
2488	1	SS	391	003	Structure	BST391-103 PLT40*400	2.000	NO	3.658
2488	1	SS	391	004	Structure	BST391-104 PLT40*400	4.000	NO	5.055
2488	1	SS	391	005	Structure	POH391-101 ISMB150	2.000	NO	0.016
2488	1	SS	391	006	Structure	SS391-101 ISMB200	2.000	NO	0.152
2488	1	SS	391	007	Structure	SS391-102 ISMB200	2.000	NO	0.062
2488	1	SS	391	008	Structure	SS391-103 ISMB150	4.000	NO	0.060
2488	1	SS	391	009	Structure	SS391-104 ISMB150	4.000	NO	0.059
2488	1	SS	391	010	Structure	SS391-105 ISMC150	1.000	NO	0.020

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2488	1	SS	391	011	Structure	SS391-106 ISMC150	1.000	NO	0.020
2488	1	SS	391	012	Structure	SS391-107 ISMB150	4.000	NO	0.071
2488	1	SS	391	013	Structure	SS391-108 ISMB200	2.000	NO	0.147
2488	1	SS	391	014	Structure	SS391-109 ISMB200	4.000	NO	0.263
2488	1	SS	391	015	Structure	SS391-110 ISMB200	2.000	NO	0.061
2488	1	SS	391	016	Structure	SS391-111 ISMB150	1.000	NO	0.016
2488	1	SS	391	017	Structure	SS391-112 ISMB150	1.000	NO	0.016
2488	1	SS	391	018	Structure	SS391-113 ISMB200	2.000	NO	0.175
2488	1	SS	391	019	Structure	SS391-114 ISMB150	4.000	NO	0.066
2488	1	SS	391	020	Structure	SS391-115 ISMB200	1.000	NO	0.070
2488	1	SS	391	021	Structure	SS391-116 ISMB200	1.000	NO	0.070
2488	1	SS	391	022	Structure	SS391-117 ISMB150	1.000	NO	0.011
2488	1	SS	391	023	Structure	SS391-118 ISMB150	1.000	NO	0.011
2488	1	SS	391	024	Structure	SS391-119 ISMB150	10.000	NO	0.171
2488	1	SS	391	025	Structure	SS391-120 ISMB350	2.000	NO	0.593
2488	1	SS	391	026	Structure	SS391-121 ISMB200	1.000	NO	0.055
2488	1	SS	391	027	Structure	SS391-122 ISMB200	1.000	NO	0.055
2488	1	SS	391	028	Structure	SS391-123 ISMB150	1.000	NO	0.014
2488	1	SS	391	029	Structure	SS391-124 ISMB150	1.000	NO	0.014
2488	1	SS	391	030	Structure	SS391-125 ISMB150	2.000	NO	0.034
2488	1	SS	391	031	Structure	SS391-126 ISMB250	1.000	NO	0.147
2488	1	SS	391	032	Structure	SS391-127 ISMB250	1.000	NO	0.147
2488	1	SS	391	033	Structure	SS391-128 ISMB200	1.000	NO	0.040
2488	1	SS	391	034	Structure	SS391-129 ISMB200	1.000	NO	0.040
2488	1	SS	391	035	Structure	SS391-130 ISMB350	2.000	NO	0.588
2488	1	SS	391	036	Structure	SS391-131 ISMB200	1.000	NO	0.028
2488	1	SS	391	037	Structure	SS391-132 ISMB150	1.000	NO	0.017
2488	1	SS	391	038	Structure	SS391-133 ISMB150	1.000	NO	0.014

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2488	1	SS	391	039	Structure	SS391-134 ISMB150	1.000	NO	0.014
2488	1	SS	391	040	Structure	SS391-135 ISMB200	1.000	NO	0.079
2488	1	SS	391	041	Structure	SS391-136 ISMB200	1.000	NO	0.079
2488	1	SS	391	042	Structure	SS391-137 ISMB150	1.000	NO	0.032
2488	1	SS	391	043	Structure	SS391-138 ISMB150	1.000	NO	0.032
2488	1	SS	391	044	Structure	SS391-139 ISMB200	1.000	NO	0.043
2488	1	SS	391	045	Structure	SS391-140 ISMB150	1.000	NO	0.026
2488	1	SS	391	046	Structure	SS391-141 ISMB150	1.000	NO	0.014
2488	1	SS	391	047	Structure	SS391-142 ISMB150	1.000	NO	0.014
2488	1	SS	391	048	Structure	SS391-143 ISMB300	6.000	NO	1.149
2488	1	SS	391	049	Structure	SS391-144 ISMB150	8.000	NO	0.059
2488	1	SS	391	050	Structure	SS391-145 ISMB150	2.000	NO	0.019
2488	1	SS	391	051	Structure	SS391-146 ISMB150	2.000	NO	0.019
2488	1	SS	391	052	Structure	SS391-147 ISMB150	6.000	NO	0.159
2488	1	SS	391	053	Structure	SS391-148 ISMB350	2.000	NO	0.590
2488	1	SS	391	054	Structure	SS391-149 ISMB150	4.000	NO	0.060
2488	1	SS	391	055	Structure	SS391-150 ISMB150	6.000	NO	0.116
2488	1	SS	391	056	Structure	SS391-151 ISMB150	6.000	NO	0.062
2488	1	SS	391	057	Structure	SS391-152 ISMB150	2.000	NO	0.050
2488	1	SS	391	058	Structure	SS391-153 ISMB150	2.000	NO	0.030
2488	1	SS	391	059	Structure	SS391-154 ISMB150	6.000	NO	0.089
2488	1	SS	391	060	Structure	SS391-155 ISMB150	2.000	NO	0.016
2488	1	SS	391	061	Structure	SS391-156 ISMB200	2.000	NO	0.043
2488	1	SS	391	062	Structure	SS391-157 WB700X300-32/16	2.000	NO	5.534
2488	1	SS	391	063	Structure	SS391-158 WB500X300-36/20	2.000	NO	1.785
2488	1	SS	391	064	Structure	SS391-159 WB400X250-20/16	4.000	NO	1.697

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2488	1	SS	391	065	Structure	SS391-160 BC150	2.000	NO	0.076
2488	1	SS	391	066	Structure	SS391-161 BC200	2.000	NO	0.101
2488	1	SS	391	067	Structure	SS391-162 BC150	4.000	NO	0.153
2488	1	SS	391	068	Structure	SS391-194 PLT25*250	8.000	NO	0.216
2488	1	SS	391	069	Structure	PLATE 16	5.000	NO	0.186
2488	1	SS	391	070	Structure	POH391-102 ISMB250	2.000	NO	0.043
2488	1	SS	391	071	Structure	POH391-103 ISMB200	2.000	NO	0.024
2488	1	SS	391	072	Structure	POH391-104 ISMB200	4.000	NO	0.252
2488	1	SS	391	073	Structure	POH391-105 ISMB200	4.000	NO	0.249
2488	1	SS	391	074	Structure	POH391-106 ISMB200	2.000	NO	0.058
2488	1	SS	391	075	Structure	POH391-107 ISMB150	4.000	NO	0.078
2488	1	SS	391	076	Structure	POH391-108 ISMB400	8.000	NO	0.949
2488	1	SS	391	077	Structure	SS391-163 ISMB300	2.000	NO	0.242
2488	1	SS	391	078	Structure	SS391-164 ISMB200	4.000	NO	0.202
2488	1	SS	391	079	Structure	SS391-165 ISMB150	6.000	NO	0.094
2488	1	SS	391	080	Structure	SS391-166 ISMB200	2.000	NO	0.139
2488	1	SS	391	081	Structure	SS391-167 ISMB300	2.000	NO	0.519
2488	1	SS	391	082	Structure	SS391-168 ISMB200	2.000	NO	0.053
2488	1	SS	391	083	Structure	SS391-169 ISMB150	2.000	NO	0.024
2488	1	SS	391	084	Structure	SS391-170 ISMB200	1.000	NO	0.031
2488	1	SS	391	085	Structure	SS391-171 ISMB200	1.000	NO	0.030
2488	1	SS	391	086	Structure	SS391-172 ISMB200	2.000	NO	0.138
2488	1	SS	391	087	Structure	SS391-173 ISMB200	4.000	NO	0.198
2488	1	SS	391	088	Structure	SS391-174 ISMB200	2.000	NO	0.104
2488	1	SS	391	089	Structure	SS391-175 ISMB150	4.000	NO	0.060
2488	1	SS	391	090	Structure	SS391-176 ISMB150	2.000	NO	0.030
2488	1	SS	391	091	Structure	SS391-177 ISMB150	4.000	NO	0.081
2488	1	SS	391	092	Structure	SS391-178 ISMB200	4.000	NO	0.106

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2488	1	SS	391	093	Structure	SS391-179 WB700X300-36/25	1.000	NO	3.573
2488	1	SS	391	094	Structure	SS391-180 WB700X300-36/25	1.000	NO	3.573
2488	1	SS	391	095	Structure	SS391-181 WB700X300-40/32	1.000	NO	0.802
2488	1	SS	391	096	Structure	SS391-182 ISMB150	2.000	NO	0.030
2488	1	SS	391	097	Structure	SS391-183 WB700X300-40/32	1.000	NO	3.217
2488	1	SS	391	098	Structure	SS391-184 WB700X300-40/32	1.000	NO	3.217
2488	1	SS	391	099	Structure	SS391-185 WB700X300-40/32	1.000	NO	0.802
2488	1	SS	391	100	Structure	SS391-186 ISMB600	4.000	NO	0.626
2488	1	SS	391	101	Structure	SS391-187 ISMB400	3.000	NO	0.193
2488	1	SS	391	102	Structure	SS391-188 ISMB400	1.000	NO	0.064
2488	1	SS	391	103	Structure	SS391-189 WB700X300-36/25	1.000	NO	0.166
2488	1	SS	391	104	Structure	SS391-190 ISMB150	4.000	NO	0.065
2488	1	SS	391	105	Structure	SS391-191 ISMB150	2.000	NO	0.033
2488	1	SS	391	106	Structure	SS391-192 WB700X300-36/25	2.000	NO	0.303
2488	1	SS	391	107	Structure	SS391-193 WB700X300-36/25	2.000	NO	7.142
2488	1	SS	391	108	Structure	SS391-195 ISMB200	4.000	NO	0.147
2488	1	SS	391	109	Structure	SS391-196 ISA100X100X10	1.000	NO	0.089
2488	1	SS	391	110	Structure	SS391-197 ISMB300	2.000	NO	0.141
2488	1	SS	391	111	Structure	SS391-198 ISA65X65X6	1.000	NO	0.041
2488	1	SS	391	112	Structure	SS391-199 ISMB150	2.000	NO	0.022
2488	1	SS	391	113	Structure	SS391-200 ISMB200	2.000	NO	0.193

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2488	1	SS	391	114	Structure	SS391-201 ISMB150	2.000	NO	0.013
2488	1	SS	391	115	Structure	SS391-202 ISMB600	2.000	NO	1.055
2488	1	SS	391	116	Structure	SS391-203 ISA200X200X20	1.000	NO	0.551
2488	1	SS	391	117	Structure	SS391-204 ISA200X200X20	1.000	NO	0.551
2488	1	SS	391	118	Structure	SS391-205 WB700X300-20/16	2.000	NO	1.272
2488	1	SS	391	119	Structure	SS391-206 ISMB400	2.000	NO	0.413
2488	1	SS	391	120	Structure	SS391-207 ISMB600	2.000	NO	0.878
2488	1	SS	391	121	Structure	SS391-208 ISA200X200X20	1.000	NO	0.491
2488	1	SS	391	122	Structure	SS391-209 ISA200X200X20	1.000	NO	0.491
2488	1	SS	391	123	Structure	SS391-210 ISA100X100X10	1.000	NO	0.096
2488	1	SS	391	124	Structure	SS391-211 ISA65X65X6	1.000	NO	0.042
2488	1	SS	391	125	Structure	SS391-212 ISMB300	2.000	NO	0.180
2488	1	SS	391	126	Structure	SS391-213 ISA65X65X6	1.000	NO	0.035
2488	1	SS	391	127	Structure	SS391-214 ISA100X100X10	1.000	NO	0.074
2488	1	SS	391	128	Structure	SS391-215 WB700X300-40/32	2.000	NO	8.355
2488	1	SS	391	129	Structure	SS391-216 PLT32*350	4.000	NO	0.654
2488	1	SS	391	130	Structure	SS391-217 WB700X300-40/32	2.000	NO	4.540
2488	1	SS	391	131	Structure	SS391-218 WB700X300-40/32	1.000	NO	2.352
2488	1	SS	391	132	Structure	SS391-219 WB700X300-40/32	2.000	NO	6.539
2488	1	SS	391	133	Structure	SS391-220 PLT32*650	1.000	NO	0.282

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Sr No	PGMA	Description	Weight (MT) for 1 unit	Weight (MT) for 4 units	Category
1	57-603	Damper SCR inlet	18.214	72.856	Non Pressure Parts
2	57-613	Damper SCR outlet	18.663	74.652	Non Pressure Parts
3	57-623	Damper SCR bypass	23.006	92.024	Non Pressure Parts
4	57-363	Damper Economizer bypass isolation	3.01	12.04	Non Pressure Parts
5	57-413	Damper Economizer bypass control	2.144	8.576	Non Pressure Parts

Note:

1. The weights given above are for all 4 units.
2. Besides product groups indicated herein, there is likelihood of addition of new product groups by BHEL's unit for release of some items, integral to this work. Tenderers' quoted unit rates shall be applicable for such product groups also.
3. The weights given against PGMA's listed above are tentative. It may change after detailed engineering is done. Rate quoted by the Contractor shall not change due to variation in weight.
4. Rate Schedule Identified for PGMAs of Insulation are Indicative only and based on envisaged material specification. Payment shall be made on the basis of material specification of actual material received and erected at site.
5. BHEL's decision with regard to classification of a particular product group for applicable rate category shall be final & binding on the Contractor.
6. Grouting of columns and equipment's are the part of erection vendors with supply of specific cement.
7. There will be no payment for consumables like welding electrode /filler wire, gases etc.
8. Painting scheme shall be provided during execution.

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GENERAL REQUIREMENTS – COMMON TO ALL WORK

10.1

The intent of specification is to provide services according to the most modern and proven techniques and codes. The omission of specific reference to any method, equipment or material necessary for proper and efficient execution of this work shall not relieve the Contractor of the responsibility of providing such facilities to complete the work without any extra compensation.

10.2

The terminal points decided by BHEL shall be final and binding on the Contractor for deciding the scope of work and effecting payment for the work done.

10.3

The work shall be executed under the usual conditions affecting major power plant construction and in conjunction with numerous other operations at site. The Contractor and his personnel shall cooperate with personnel of BHEL, BHEL'S Customer, Customer's consultants and other Contractors, coordinating his work with others and proceed in a manner that shall not delay or hinder the progress of work of the project as a whole.

10.4

The work covered under this specification is of highly sophisticated nature, requiring the best quality workmanship, supervision, engineering and construction management. The Contractor should ensure proper planning and successful & timely completion of the work to meet the overall project schedule. The Contractor must deploy adequate quantity of tools & plants, modern / latest construction aids etc. He must also deploy adequate trained, qualified and experienced supervisory staff and skilled personnel.

10.5

Contractor shall erect and commission all the equipments and auxiliaries as per the sequence & methodology prescribed by BHEL depending upon the technical requirements. Availability of materials and fronts will decide this. BHEL Engineer's decision regarding correctness of the work and method of working shall be final and binding on the Contractor. No claims for extra payment from the Contractor will be entertained on the ground of deviation from the methods / sequence adopted in erection of similar sets elsewhere.

10.6

All necessary certificates and licenses, permits & clearances required to carry out this work from the respective statutory/ local authorities are to be arranged by the Contractor at his cost in time to ensure smooth progress of work.

10.7

~~The boiler shall be erected as per relevant provisions of latest Indian Boiler Regulations (IBR) and amendments/addendums thereof, if any.~~

10.8

The work shall conform to dimensions and tolerances specified in the various drawings / documents that will be provided during various stages of erection. If any portion of work is found to be defective in workmanship, not conforming to drawings or other stipulations due to Contractor's fault, the Contractor shall dismantle and re-do the work duly replacing the defective materials at his cost, failing which the work will be got done by BHEL and recoveries will be effected from the Contractor's bills towards expenditure incurred including cost of materials and departmental overheads of BHEL.

10.9

The Contractor shall perform any services, tests etc, which may not be specified but nevertheless, required for the completion of work within quoted rates.

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10.10

All necessary certificates and licenses required for carrying out this work are to be arranged by the Contractor expeditiously.

10.11

The Contractor shall execute the work in the most substantial and workman like manner. The stores shall be handled with care and diligence.

10.12

BHEL reserves right to recover from the Contractor any loss which arises out of undue delay / discrepancy / shortage / damage or any other causes due to Contractor's lapse during any stage of work. Any loss to BHEL due to Contractor's lapse shall have to be made good by the Contractor.

10.13

All cranes, transport equipment, handling equipment, tools, tackles, fixtures, equipment, manpower, supervisors/engineers, consumables etc. except otherwise specified as BHEL scope of free issue, required for this scope of work shall be provided by the Contractor. All expenditure including taxes and incidentals in this connection will have to be borne by Contractor unless otherwise specified in the relevant clauses. The Contractor's quoted rates should be inclusive of all such contingencies.

10.14

During the course of erection, testing and commissioning certain rework / modification / rectification / repair / fabrication etc. may become necessary on account of feed back / revision of drawing etc. This will also include modifications / re-works suggested by BHEL / customer / other inspection group. Contractor shall carry out such rework / modification / rectification / fabrication / repair etc. promptly and expeditiously. Daily log sheets signed by BHEL engineer and indicating the details of work carried out, man-hours etc. shall be maintained by the Contractor for such reworks. Claim of Contractor if any, for such works will be governed by relevant clauses of „General Conditions of Contract“.

10.15

All works such as cleaning, leveling, aligning, trial assembly, dismantling of certain equipments / components for checking and cleaning, surface preparation, fabrication of structures, tubes and pipes as per general engineering practice and as per BHEL Engineer's instructions at site, cutting, gouging, weld depositing, grinding, straightening, chamfering, filing, chipping, drilling, reaming, scrapping, lapping, fitting up etc. as may be applicable in such erection works and which are treated incidental to the erection works and necessary to complete the work satisfactorily, shall be carried out by the Contractor as part of the work within the quoted rates.

10.16

The Contractor shall make all fixtures, temporary supports, steel structures required for jigs & fixtures, anchors for load and guide pulleys required for the work. Contractor shall arrange necessary steel for such usage. ~~Only the steel for making temporary structure (cat head) for drum lifting will be provided by BHEL in random sizes materials available at site.~~

10.17

The Contractor shall take delivery of the components, equipments, chemicals, and lubricants etc. from the BHEL stores/ storage area after getting the approval of BHEL Engineer on standard indent forms of BHEL. Complete and detailed account of the materials and equipments after usage shall be submitted to the BHEL and reconciled periodically.

10.18

The distance between storage area and erection site is approx. 3 to 5 KM. Contractor shall plan and transport equipments, components from storage to erection site and erect them in such a manner and sequence that material accumulation at site does not lead to congestion at site of

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work. Materials shall be stacked neatly, preserved and stored in the Contractor's shed and at work areas in an orderly manner. In case it is necessary to shift and re-stack the materials kept at work areas/ site to enable other agencies to carry out their work or for any other reason, same shall be done by Contractor most expeditiously as incidental to work.

10.19

Plant materials should not be used for any temporary supports / scaffolding/ preparing pre-assembly bed etc.

10.20

The details of equipments to be erected under this contract are generally as per the schedule given in relevant appendices. These details are approximate and meant only to give a general idea to the tenderer about the magnitude of the work involved. Actual quantum and type of equipments will be based on the relevant erection documents which will be furnished to the Contractor in due course of erection and the weight and quantity as per the relevant engineering documents will only be admissible for the billing purpose.

10.21

Hangers & suspensions, supports etc. for tubes, piping, & ducts etc. will be supplied in running / random lengths / sizes which shall be cut to suitable sizes and adjusted as required.

10.22

Spring suspension / constant load hangers may have to be pre-assembled for required load and erection carried out as per instructions of BHEL. Adjustments, removal of temporary arrests/locks, cutting of excess thread length of hanger tie-rod etc. have to be carried out as and when required. Load setting of spring hangers, as per BHEL's documents/instructions, during various stages of erection & testing and after floating of piping/ducting during cold and hot condition will have to be done as part of work. This exercise may have to be repeated till satisfactory results are achieved.

10.23 Layout of field routed/ small bore piping shall be done as per site requirement. Necessary sketch for routing these lines should be got approved from BHEL by the Contractor. There is a possibility of slight change in routing the above pipe lines even after completion of erection.

10.24

Welding of necessary instrumentation tapping points, thermo well, thermocouple pad, metal temp pad and clamps, root valve, condensing vessel, flow metering & measurement devices, and control valves to be provided on boiler & its auxiliaries and piping are covered within the scope of this specification. The installation of all the above items will be Contractor's responsibility even if:

a) Items are not specifically indicated under the respective product groups as given in the technical specifications. b) Items are supplied by an agency other than BHEL.

Pre-heating, NDE, and Post weld heat treatment for above shall be done as per the specifications as part of work.

10.25

Certain instrumentation like pressure switches, air sets, filters, regulators, pressure gauges, junction boxes, power cylinders, dial thermometers, flow meters, valve actuators, flow indicators, centrifugal/speed switches of motors, accumulators etc. are received in assembled condition as integral part of equipments. Contractor shall dismount such instruments for calibration and hand over the same to BHEL. C & I erection agency will do storage / re-erection calibration etc.

10.26

Fixing and seal welding of thermo wells & plugs before Hydro test/ steam blowing of equipment or other piping system is within the scope of work. Contractor shall also remove the seal welded

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plugs by process of grinding and fix and seal weld thermo wells after hydro test/steam blowing of lines as part of work.

10.27

Actuators/drives of valves, dampers, gates, powered vanes etc. may have to be serviced, lubricated, before erection, during pre-commissioning & commissioning, including carrying out minor adjustments required as incidental to the work.

10.28

All electrical motors have to be tested for IR & PI values prior to the trial run. Where required, dry out may have to be carried out by using external heating source. Contractor shall make all arrangements in this regard and complete the work as instructed. BHEL will provide the motorized insulation testers.

10.29

In installation of various equipments it may become necessary to install these on temporary supports/ hanger due to various reasons including non-availability of suspension materials. Contractor shall install such temporary suspensions/hangers and later on shift the relevant equipments to their respective permanent hangers/ suspensions/ supports as incidental to work.

Requisite materials for such temporary arrangements will be provided by BHEL on free - returnable basis which shall be returned to BHEL after the use.

10.30

The work shall be carried out strictly in accordance to the “Field Quality Plan” approved by BHEL/client. Contractor, jointly with BHEL, shall prepare all necessary records of measurements/readings/ protocols etc.

10.31

All works such as cleaning, leveling, aligning, trial assembly, dismantling of certain equipments / components for checking and cleaning, surface preparation, fabrication of sheets, tubes and pipes as per the general engineering practice and as per BHEL engineers instructions at site, cutting, weld disposing, grinding, straightening, chamfering, filing, chipping, drilling, reaming, scraping, lapping, fitting up etc. as may be applicable in such erection works and which are treated incidental to the erection work and necessary to complete the work satisfactorily shall be carried out by the Contractor as part of the work.

10.32

Interconnection/ hookup, if any, with the existing system shall form part of work. Such interconnections, hookups may require shut down of running plant and the relevant work have to be completed within such planned shutdowns. This may call for working with enhanced resources and on extended hours. Contractor's offer shall cover all such contingencies.

10.33

Contractor shall regulate flow of material to and from site in such a manner and sequence that material accumulation at site does not lead to congestion at site. In case it is necessary to shift and restack the materials kept at work areas / site to enable other agencies to carry out their work or further any other reason, it shall be done by the Contractor most expeditiously. No claim for extra payment for such work will be entertained.

10.34

It may so happen that certain components like manhole doors, hanger etc. may be supplied in loose items. They need to be assembled as per relevant drawings or as per advice of BHEL engineer prior to erection. This forms the part of the scope of work.

10.35

The Contractor shall have total responsibility for all equipment and materials in his custody at Contractor's stores, loose, semi-assembled, assembled or erected by him at site. He shall

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effectively protect the finished works from action of weather and from damages or defacement and shall also cover the finished parts immediately on completion of work as per BHEL engineer's instructions. The machine surfaces/finished surfaces should be greased and covered.

10.36

BHEL is operating web based computerized site operation management system (SOMS) that includes, inter-alia, issue of materials, daily progress reporting, Contractor's running monthly billing and material reconciliation through a computerized data management system. Contractor shall install necessary hardware to hook-up with the BHEL's system and use the same for his scope of work.

In the event the computerized SOMS is inoperative for any reasons, the Contractor shall take delivery of materials from the storage area/sheds of BHEL/customer after getting the approval of the engineer/customer on standard indent forms to be specified by BHEL/customer. All these records however shall be updated in the SOMS as and when the SOMS is reactivated/normalized.

10.37

Gases like argon, oxygen, acetylene etc. that are required for erection related activities shall be arranged by the Contractor at his cost. For T-91 material site weld joints argon as per grade-3 of is 5760: 1998 with oxygen and water vapor restricted to max 6 ppm each and with argon purity level of minimum 99.99% shall be arranged and used by the Contractor. The arrangement should accompany test certificate for the batch indicating individual element „ppm“ level and overall purity level.

10.38

~~Nitrogen gas, if required, for preservation of boiler and nitrogen capping during chemical cleaning process, will be provided by BHEL free of charge. Contractor shall arrange necessary connector, nipple, regulator, header and piping for usage of such gas from cylinders.~~

10.39

All lubricants and chemicals required for testing, preservation, chemical cleaning / acid cleaning, oil flushing, and the lubricants for trial runs of the equipments and trial operation of the unit will be supplied by BHEL free of charges.

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Chapter-XI Boiler Modification

The scope of the work will comprise of but not limited to the following:

The scope of work is further detailed in the specifications hereinafter.

11.1 PRESSURE PARTS

A) Installation of temporary structure for drum lifting is in the scope of the Contractor's work. The required steel for the purpose will be provided in random sizes by BHEL free of charge. These shall be fabricated to suit the requirement, erected and welded as part of work. NDT has to be carried out as per instructions. These structures have to be dismantled at appropriate stage and returned to BHEL as per the instructions of BHEL engineer. Also, the relevant areas of permanent structures have to be finished as instructed/ as per relevant codes of practice. Payment for above will be made at the rate accepted for structures; no separate payment will be made for fabrication, dismantling and finishing work and return of materials.

B) Pressure parts components like headers, panels, coils, loose tubes etc. have to be flushed/blown with compressed air, checked for dimensional accuracy and configuration and minor rectifications, if necessary will have to be done before erection. This will involve making appropriate bed of steel structures over the concrete blocks/ steel pedestals. Necessary steel, concrete blocks shall be arranged by the Contractor. bed shall be fabricated as per BHEL requirement.

C) Normally the high pressure valves will have prepared edges for welding. But, if it becomes necessary, the Contractor shall prepare new edges or recondition the edges by grinding or chamfering to match the corresponding tubes and pipes. No gas cutting will be permitted. All fittings like "T" pieces, weld neck flanges, reducers, etc. shall be suitably matched with pipes for welding (This is applicable to piping work also).

D) Welding of all attachments on pressure parts including those required for insulation work is in the scope of work.

E) Surfaces inside seal box and other areas that are to be applied with cast able refractory lining shall be painted with black bitumen paint before boxing up and application of refractory. Seal boxes need to be partially cut open in order to pour refractory. Contractor shall carry out necessary cutting and seal welding of such cutouts. Contractor shall provide the black bitumen paint of required specification for such applications.

F) Furnace area and heat recovery area of flue gas passage has to be made leak proof by seal welding. Air leak test by pressurization has to be conducted to prove effectiveness of the seal weld and soap bubble or any other similar test will have to be carried out for the entire seal welds to ascertain the effective sealing is achieved. The tests may have to be repeated till satisfactory result is achieved.

G) If required, the pressure parts, after initial erection and tests, will have to be preserved by either dry or wet preservation procedure. Contractor shall erect the piping & valves and provide necessary assistance for the same. Required piping, valves and preservative (gas / chemicals) will be provided by BHEL as free issue.

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Chapter-XI Boiler Modification

H) The drum internals, if already installed, may have to be removed to facilitate inspection by statutory authorities and chemical cleaning. The drum internals are to be preserved properly and re-fitted at appropriate stage as part of work.

I) Super heater and/or re-heater system will have HP butt weld joints of T-91 material. Welding of these HP joints shall involve pre-heating and post heating by resistance heating, argon purging of joints during welding process and full TIG weld. Contractor should follow required procedure for T91 welding NDT, etc.

J) Corrections in the profiles of scalloped plates/bars, skin casing, seal plates etc. for proper matching with mating parts, wherever required, shall be done as incidental to the work.

11.2 MAIN SUPPORTING STRUCTURES, EXTERNAL STRUCTURES, ELEVATOR STRUCTURES, STAIRWAYS, GALLERIES & PLATFORMS & HANDLING ARRANGEMENT

11.2.1

Boiler/Duct main supporting structures have to be erected in a sequential manner.

11.2.2

Quality norms with regard to verticality of column, inter-alia, have to be adhered to strictly, at various stages of erection.

11.2.3 Stiffening / strengthening of main supporting structure, if any, due to deviation in verticality of columns post drum lifting, shall be carried out, including fabrication, if any. Necessary steel for this will be provided in random sizes by BHEL as free issue. Payment for such stiffening/ strengthening shall be made for weight certified by BHEL engineer at the item rate applicable to structures, provided the deviation has occurred for the reasons not attributable to the Contractor. If the deviations are attributable to Contractor, the materials required for Rectification / Stiffening / Strengthening, fabrication, erection of the same shall be to the Contractors account.

11.2.4

~~Each of the ceiling girders will be sent in 2 to 3 pieces and will have to be assembled, welded and NDE & PWHT (SR) done on ground prior to their erection in position.~~

11.2.5

It is likely that, in deviation from prescribed sequence, erection of certain elements of structure may be deferred for later stage, to facilitate, say crane boom reach to higher elevation, passage of drum during drum lifting etc. this may necessitate temporary installation of some structural steels at appropriate locations to keep the stability of structure intact. such temporary installations shall be removed subsequently and returned to BHEL stores/ storage yard. Finishing work in the related permanent structures shall be done as per the instruction of BHEL engineer. BHEL will provide necessary steels on free issue basis in random sizes for such installations, which shall be fabricated by the Contractor to suit the requirement.

Payment for such installations shall be made on the accepted tonnage rate of structures. No separate payment will be made for fabrication, removal & return of the materials to BHEL stores.

11.2.6

In some cases, the structural material will be supplied in random lengths, which have to be fabricated to suit the requirement as incidental to work. Also, it may sometimes be necessary to remove some of the erected members to facilitate erection of bigger/ pre-assembled equipments. In such cases, the removal and re-erection of such members as agreed by the BHEL Engineer, will have to be done by the Contractor as incidental to work.

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11.2.7

Contractor shall arrange materials required for temporary cat ladders & working platforms during erection of columns, platforms and other structural components. Such arrangements shall, as far as possible, be only of clamping & bolting type, as welding on columns etc will not be permitted. After the completion of work these shall be removed.

11.2.8

All the hand rails and toe guards shall be provided as per drawings and site requirement. hand rails supplied in running lengths shall be suitably cut, edge prepared and welded. Also, hand rails/guards may have to be provided from the safety point of view in certain places though not indicated in the erection drawings. The weld joints of hand rails shall be ground smooth to flush finish.

11.2.9 Electro forged floor grills will be supplied for this project. These may have to be cut to suit requirement. Cutting shall be done only by mechanical cutters **and not by gas cutting**. Cold galvanizing compound is to be applied on the cut surface/edge. Cold galvanizing paint will be arranged by agency within the quoted price.

Fixing of floor grills shall be done by self-tapping screws **and not by weldable studs**. Special purpose electrically operated hand tools are available in the market for this, which drills, taps and fixes the screws in a single operation. BHEL will supply the necessary self-drilling-cum-tapping screws and fixing clips. Contractor shall deploy the drilling cum fixing machine required for this purpose as a regular scope of work.

11.2.10

The Contractor shall also install additional platforms of permanent nature for approaching different equipment as per the site requirement and to meet O&M requirements, though these may not indicated in the erection drawings. Materials required for such platforms will be supplied by BHEL in random sizes on free issue basis. These have to be fabricated to suit the requirement. Payment only for erected weight as certified by BHEL engineer shall be made at the rate applicable for structures. No payment is envisaged for fabrication of structures.

11.2.11

All relevant provisions as above shall apply, mutatis-mutandis, to the work of external structures, interconnecting structures, elevator structures, ESP stairways and galleries & equipment handling system etc.

11.3 OTHER PRODUCTS AND SYSTEMS AND COMMON REQUIREMENTS

a) The ducting covered under this scope of work is flue gas ducting up to boiler outlet flange, boiler outlet flange to ESP, hot and cold secondary air ducting from FD fans outlet to wind box, hot and cold primary air ducting from PA fans to mills including interconnections, flow meters, dampers/gates and their drives, supports and suspensions etc. for these systems.

b) Ducts / expansion bellows (metallic & non-metallic) are normally supplied in loose components / segments and these are to be assembled and welded/ jointed at site before erection. The fabric portion of non-metallic expansion joints (NMEJ) namely bolster, fabric belt and canopy shall be installed by Contractor under supervision/guidance of equipment supplier/BHEL for the first few cases. Contractor shall ensure that all subsequent NMEJ are assembled with due care and proper procedure. In similar manner all joints, connecting ducts, expansion pieces and dampers shall be seal welded. These welds have to be made leak proof and tested as per technical instruction / requirement.

c) Certain structural items like silencer supports, roof cladding structure, platform etc. will be supplied in running lengths which shall be cut to required suitable sizes and adjusted/trimmed as part of work.

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Chapter-XI Boiler Modification

- d) Contractor has to make canopies for motors, actuators, lube oil units, control valves, etc. material for this will be supplied in random lengths / sizes. No separate payment for fabrication is envisaged. Only the erection tonnage rate applicable for structure will be paid for this work.
- ~~e) Boiler roof sheets shall be erected on boiler roof structure.~~
- ~~f) ID fans are provided with variable frequency drives. Contractor has to erect & commission the only the motor and other mechanical components like coupling etc. Panels, transformers, cabling etc. are not in this work specification.~~
- g) Actuator / drives of dampers, gates etc. may have to be serviced, lubricated before erection, during precommissioning and commissioning, including carrying out adjustments required as incidental of the work.
- h) All welded joints should be painted with anticorrosive paint / primer immediately after completion of all work.** Necessary paints and other consumables for the above work are in the scope of the Contractor.
- i) Spring suspension / constant load hangers may have to be preassembled for required load and erection carried out as per instruction of BHEL adjustments, removal of temporary arrests / locks, cutting of excess thread length of hanger, tie rod etc. have to be carried out as and when required. Load setting of spring hangers, as per BHEL"s documents / instructions, during various stages of erection and testing and after floating of piping / ducting during cold and hot condition will have to be done. This exercise may have to be repeated till satisfactory results are achieved.
- j) Hangers and suspensions, support steels for ducts and other equipment"s, piping etc. will be supplied in running/random lengths/ sizes, which shall be cut to suitable sizes and adjusted as required.
- k) Touch up and preservative painting of all components issued to and/or erected by Contractor shall form part of scope of work. The Contractor shall arrange all paints, primer and consumables, T&P and facilities.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XII Foundation & Grouting

PREPARATION OF FOUNDATIONS, AND GROUTING OF EQUIPMENT OF BOILER & AUXILIARIES

12.1

Building foundations and other necessary civil works for supporting structures, equipment's etc. will be provided by BHEL / Customer. The checking of dimensional accuracy, axes, elevation, levels etc., with reference to bench marks of foundations and anchor bolt pits have to be checked and logged by the Contractor. The permanent benchmark / reference marks will have to be transferred to new locations with sufficient care to maintain the accuracy and protected / preserved with adequate care (to enable rechecking at later dates) as per BHEL instruction. Minor adjustment of foundation level, dressing and chipping of foundation surfaces and blue-matching (wherever required) for of all equipments as per BHEL Engineers instructions, should be done by the Contractor as part of the work. Contractor/BHEL shall prepare protocols before taking over the foundations. Dressing and chipping of foundations up to 35mm for achieving proper levels will be within the scope of work/specification.

12.2

All temporary foundations and anchor points required for installing erection Equipments and winches, foundations for pumps, tanks etc. are in the scope of Contractor. All building materials like cement, steel including re-enforcement bars, grits cements etc. for such temporary foundations shall have to be arranged by the Contractor within the quoted rates. ~~All such foundations shall be demolished and normal ground conditions restored after the usage. Neutralization pit for EDTA cleaning is to be made by the Contractor. After completion of job pit has to be dismantled and area is to be leveled before handing over of area to owner. Effluent to be disposed off safely from neutralizing pit to a safe area as per instruction of BHEL Engineer.~~

12.3

Contractor shall carry out scrapping and blue matching of embedded plates/ packers of rotating equipments. Chipping and the leveling of concrete surfaces, fine dressing up to the extent required to obtain contact between packer and concrete, is also covered in the scope of this work. Scrapping, chipping and matching shall be done so as to achieve prescribed percentage of contact between the two surfaces.

12.4

BHEL will provide free of cost only the shims and packer plates (either machined or plain) which go as permanent part of the equipment. Certain packer plates and shims over and above the quantity received as a part of supplies from manufacturing units of BHEL, will have to be cut out from steel plates / steel sheets at site to meet site requirement. Contractor shall cut and prepare packers and shims by gas cutting / chiseling / grinding and de-burr the same. However, machining of the packers wherever necessary shall be arranged by contractor.

12.5 Complete grouting of structures equipments, including anchor/ foundation bolts, beneath base, base hollows etc. as may be applicable, is included in the scope of Contractor. Arranging all labor, building materials including cement, ordinary Portland as well as quick setting – free flow - non-shrink grout mix (e.g. conbextra gp1/gp2), form work, shuttering, and any other requirements is in the Contractor's scope. Contractor shall obtain approval of BHEL for cement (ordinary Portland as-well-as quick setting – free flow- non-shrink grout mix) prior to use. Cleaning of foundation surfaces, pocket holes and anchor bolt pits and de-watering and making them free of oil, grease, sand and other foreign materials by soda washing, water washing, compressed air and other approved methods are within the scope of this specification/ work.

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12.6

After the grouting has finally set and cured, alignment of equipments involved shall be checked again to verify for any disturbance or any other reason. If required, de-coupling of equipments has to be done for conducting the verification. In case any disturbance is noticed the cause, if any, shall be removed and re-alignment done as part of work.

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Chapter-XIII WELDING, RADIOGRAPHY, NDT, PWHT

WELDING, RADIOGRAPHY AND OTHER NON-DESTRUCTIVE TESTING, POST WELD HEAT TREATMENT

Refer Annexure-1 Guidelines for NDE and Heat Treatment Agency-PSWR

13.1 WELDING

13.1.1

Installation of equipment involves good quality welding, NDE checks, post weld heat treatment etc. Contractor's personnel engaged should have adequate qualification on the above works.

13.1.2

The method of welding (viz) arc, TIG or other method will be indicated in the detailed drawing/documents. BHEL Engineer will have the option of changing the method of welding as per site requirement.

13.1.3

Welding of high pressure joints shall be done by IBR certified high pressure welders who have been permitted by CIB of state concerned for deployment at the site of work.

13.1.4

Welding of all attachments to pressure parts, piping shall be done only by the qualified and approved welders.

13.1.5

Before any welder is engaged on work, he shall be tested and qualified by BHEL/ customer, though they may possess the IBR/other certificate. BHEL reserves the right to reject any welder without assigning any reason. All the expenditure in testing/qualification of the Contractor's welder shall be borne by Contractor.

13.1.6

Unsatisfactory and continuous poor performance may result in discontinuation of concerned welder.

13.1.7

The welded surface shall be cleaned of slag and painted with primer paint to prevent rusting, corrosion. For this consumables like paint /primer etc. will be in the Contractor's scope.

13.1.8

HP joint fit-up, should be protected, where required, by use of tapes/protective paint as may be prescribed by BHEL. The Contractor shall arrange consumables like protective paints/tapes etc.

13.1.9

The Contractor shall maintain welding records in the form as prescribed by BHEL containing all necessary details, and submit the same to the BHEL Engineer as required. Interpretation of the BHEL Engineer regarding acceptability of the welds shall be final.

13.1.10

In the case of P-91 pipe welding, Contractor shall deploy welders having experience in welding of P-91 material. The welders engaged by Contractor if not qualified for P-91 welding will be trained by BHEL at BHEL welding research institute (WRI) trichy and allowed to work only after passing the required test arranged by BHEL. All the expenditure towards such qualification including cost of training, traveling expenses, stay etc., shall be borne by the Contractor.

13.1.11

Joint fit up will be a stage of inspection. Where required, joints shall be offered for visual inspection after root run. Subsequent welding should be made only after the approval of root run.

NOTE: IBR welding, to be done, only if required.

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13.1.12 SOCKET WELDING:

In execution of this work, considerable number of socket weld joints is involved. The exact quantity of such socket welds or probable variation in the quantum cannot be furnished. The tenderer shall take notice of this while quoting as no extra claim on this account will be entertained. The socket welding on HP parts/ HP piping shall be done by the IBR qualified welders. Contractor has to adhere to the procedures/specification as indicated in the drawing for socket welding.

13.1.13

Welding electrodes have to be stored in enclosures having temperature and humidity control arrangements. This enclosure shall meet BHEL specifications.

13.1.13

Welding electrodes, prior to their use, call for baking for specified period and will have to be held at specified temperature for specified period. Also, during execution, the welding electrodes have to be carried in portable ovens.

13.2 HEAT TREATMENT:

13.2.1

For the purpose of temperature recording of stress relieving process, thermocouples have to be attached to the weld joint. The number of temperature measuring points and locations shall be as per the standards of BHEL. Thermocouples have to be attached using capacitor discharge type portable thermocouple attachment unit. Contractor shall arrange sufficient number of thermocouple attachment units.

13.2.2

Contractor should provide temperature indicator / temperature recorder for measuring temperature during pre-heating for welding or for controlling temperature of metal for hot correction etc. The temperature recorders should be preferably of solid state type.

13.2.3

Heat treatment may be required to be carried out at any time (day or night) to ensure the continuity of the process. The Contractor shall make all necessary arrangements including labourer required for the same as per directions of BHEL.

13.2.4

In certain cases only the pre-heating of weld joints may be called for.

13.2.5

For weld joints of heavy structural sections, if heat treatment is required, the same shall be carried out as part of the work.

13.2.6

Checking effectiveness of stress relieving by hardness tests (by digital hardness tester or other approved test methods as per BHEL Engineer's instruction) including necessary testing equipments is within the scope of the work / specification.

13.2.7

Preheating, inter-pass heating, post weld heating and stress relieving after welding are part of erection work and shall be performed by the Contractor in accordance with BHEL engineer's instructions. Where the electric resistance heating method is adopted Contractor shall make all arrangement including heating equipment with automatic recording devices, all heating elements, thermocouples and attachment units, graph sheets, thermal chinks, & insulating materials like mineral wool, asbestos cloth, ceramic beads, asbestos ropes etc, required for all heating and stress relieving works.

BHEL will provide the induction heating equipment set for SA 335 P-91 materials piping only.

The set will comprise of following:

(i) Main panel

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- (ii) Capacitor panel
- (iii) Interconnection power & control cables between above panels
- (iv) 185 sq mm special connecting cable from capacitor panel output – 5m length.

Contractor shall provide the input electrical power connection including arrangements such as DB, cables etc. thermocouple pads, thermocouples and compensating cables, induction heating annealing cables (from the capacitor panel to joint and for wrapping around the weld joint) (spec: single core 240 sq mm, 1200a, 3khz), ceramic wool and other consumables etc. as may be required. Quantum of annealing cable requirement will depend on many parameters e.g. weld joint size, heat input, type of connection i.e. series or parallel etc.

Likely supplier: Mansfield Cable Co. Noida (UP).

13.2.8

All the recorded graphs for heat treatment shall be handed over to BHEL/ IBR authorities and due clearances obtained.

13.2.9

During welding & post weld heat treatment of main steam piping (P-91 material), the induction heating process shall continue un-interrupted. Therefore, contractor shall arrange back-up DG set to take care of power interruptions during the process.

13.2.10

Results of these processes shall be verified/ validated as per requirements of BHEL/client.

13.3 NON DESTRUCTIVE EXAMINATION:

13.3.1

Contractor shall provide all resources and make all arrangements for the radiographic examination of welds for this work. for reasons of safety, invariably the radiography work will be carried out after the normal working hours and close of other site activities only. in this regard, the Contractor has to adhere to the safety rules / regulations laid by bark authorities from time to time.

13.3.2

Radiography inspection of welds shall be performed in accordance with requirements and recommendation of BHEL Engineer. The minimum quantum of radiographic inspection shall be as per provision of IBR/BHEL"s erection documents. They may, however be increased depending upon the performance of the individual welder at the discretion of BHEL Engineer/Boiler inspecting authority. Bidder shall also arrange the UT equipment with recording facility at his own cost. Usage of UT equipment shall be as per direction of BHEL engineer. Records of UT shall be produced as per site requirement.

13.3.3

All X-Ray / Gamma Ray films of weld joints shall be preserved properly and be handed over to BHEL/ IBR authorities and requisite clearances shall be obtained by the Contractor.

13.3.4

The field welded joints shall be subject to Dye-penetrant/MPT/RT/ other non-destructive examination as specified in the respective engineering documents/ as instructed by BHEL.

13.3.5

Wherever required, surface preparation, like smooth grinding of welded area, prior to Radiography shall be done. It may also become necessary to adopt inter-layer radiography/MPT/UT depending upon the site/ technical requirement necessitating interruptions in continuity of the work and making necessary arrangements for carrying out the above work. The Contractor shall take all this into account in his offer. The required NDT method/procedure will be decided by BHEL engineer at site.

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Chapter-XIII WELDING, RADIOGRAPHY, NDT, PWHT

13.3.6

Tenderer shall note that 100% radiography shall be taken on all high pressure welding till such time the welders' performance is found by BHEL Engineers to be satisfactory. Subsequently, subject to consistency in welder's performance, the percentage of radiography will be based on BHEL's standard practice/code requirement. The defects shall be rectified immediately and to the satisfaction of BHEL engineer. The decision of BHEL engineer regarding acceptance / rejecting the joints will be final and binding on the Contractor.

13.3.7

100% radiograph of certain sizes in piping have to be taken as per BHEL standards/ drawings.

13.3.8

For carrying out ultrasonic testing of welding joints of large size tubes and pipes, it will be necessary to prepare surface by grinding and buffing a smooth finish and contour as necessary. The Contractor's scope of work includes such preparation as incidental to work.

13.3.9

After stress relieving 5% of UT for all critical lines and 2% of UT for other alloy steel lines to be taken to ensure soundness of joints particularly stress relieving cracks. No separate payment will be made.

13.3.10

Contractor may have to undertake radiography with cobalt-60 isotope camera in certain cases. However, for any reason if use of Cobalt-60 is not possible then these joints shall be checked by radiography after completion of welding up to suitable part of thickness with IR-192 other suitable source subsequently after completing the joint UT to be done. For this Contractor has to deploy level-II operator certified by BARC.

13.3.11

In the case of P-91 piping wherever radiography is not possible, alternatively ultrasonic test has to be carried out apart from other NDE checks.

13.3.12

For piping of thickness less than 25 mm no radiography plugs will be provided radiography shots to be taken by double wall technique or any other method to be adopted in consultation with BHEL engineer at site.

13.3.13

No separate payment for any NDE activities (including radiography) will be made.

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Chapter-XIV LINING AND INSULATION

LINING AND INSULATION

Application of insulation, finishing, cladding and outer casing etc. of the following:

1. ~~Main boiler & Dearator.~~
 2. Boiler auxiliaries including, but not limited to, ducts, fuel oil Equipment"s, fans etc.
 3. ~~Boiler integral piping and tanks & vessels~~
 4. ~~Power cycle piping, Regenerative piping and critical piping including vessels and tanks & other equipment"s~~
 5. ~~LP piping and other equipment"s~~
 6. Other equipment"s including BOIs, though not listed above but required for completion
- 14.1

The work shall conform to dimension and tolerances specified in the various drawing and documents that will be provided during the execution. if any portion of the work is found to be defective in workmanship or not conforming to drawings or other specifications, the Contractor shall dismantle and re-do the work duly replacing the defective materials at his cost, failing which the work will be got done by engaging other agencies or departmentally and recoveries will be deducted from Contractor"s bills towards expenditure incurred including 30% departmental charges.

14.2

The terminal points as decided by BHEL shall be final and binding on the Contractor.

14.3

All insulation and refractory materials including iron components and outer sheet casing materials, cladding sheets etc. required will be supplied by BHEL and the same have to be erected/ applied as per the drawings and specifications of BHEL by the Contractor.

14.4

The Contractor shall provide all the necessary scaffolding materials, temporary structures and necessary safety devices etc., during all stages of work. Scaffolding materials (poles, gratings etc.) shall be of light weight construction. Contractor shall arrange steel pipes & clamps with accessories like base plate attachment, fixing pins, struts etc. for scaffolding required for this work. However, BHEL"s decision in this regard shall be final and binding. Contractor shall arrange the scaffolding materials in sufficient quantity.

The Contractor shall provide the required quantity of wire, nails, and planks for formwork and other materials for shuttering and curing works.

14.5

Contractor shall observe all precaution for laying, curing etc. of pourable insulation. the Contractor at his own cost shall redo any defective works found.

14.6 Wool insulation is received at site as loose bonded mattresses in standard sizes. These are to be dressed/cut to suite the equipment"s. Multiple layers of wool have to be applied as directed and as per drawings and specifications for all equipment"s/ systems covered under the scope of work.

14.6

Cutting & dressing of insulation bricks to suit the site area of application is incidental to work.

14.7

Removable type of insulation has to be provided for valves fittings, expansion joints etc. as per drawing or as directed by BHEL Engineer.

14.8

The cladding and outer casing are aluminum sheets. All relevant specifications and procedures with regards to beading, sealing etc. for aluminum sheets have to be adhered to.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XIV LINING AND INSULATION

14.9

Cladding/outer casing shall be fixed expeditiously, so as to avoid damage to the insulation from the weather.

14.10

The overlapping surface of outer casing/cladding sheet shall be coated with sealing compound, which will be supplied by BHEL free of cost.

14.11

To take care of bimetal corrosion due to variety of metals in contact of each other viz. retainer to support, support to outer casing/cladding, cladding-to-cladding etc., suitable paints specified by BHEL, to be applied and/or neoprene rubber packing/strips or any other insert may have to be fixed as required.

14.12

The Contractor shall leave certain gaps and openings while doing the work as per the instructions of BHEL Engineer to facilitate inspection by boiler inspector or during commissioning to fix gauges, fittings, instruments etc. these gaps will have to be finished as per drawings at later date by the Contractor at his cost.

Contractor shall cut open works in needed as per BHEL Engineer's instructions during commissioning for inspection, checking and make good the works after inspection is over without any extra payment.

14.13

A log book shall be maintained by the Contractor for the clearance of the area for application of refractory and insulation. Where the Contractor does the work on his own accord without prior permission, the work should be re-done, at his own cost, where necessitated.

14.14

Wastage allowances for the material issued are envisaged as follows:

- ~~a Pourable & cast able insulation - 2%~~
- ~~b Insulation bricks and motor - 2%~~
- c Wool mattresses - 2%
- d Cladding sheets - 2%

The wastage allowance will be applicable on the net issued quantity i.e. total quantity issued reduced by the quantity returned to stores as unused/fresh item. Contractor shall reconcile the material issues periodically as prescribed by BHEL site.

14.14

The following works are also included in the scope of this contract.

Cutting of cladding sheets as per the profile of the equipment and painting on inner surface two coats of bituminous paint. **Black Bituminous Paint will be arranged by Contractor within quoted price.**

Cutting of the wool mattresses to the required shape and application of finishing cement of required thickness wherever required.

14.16

~~Insulation work of temporary piping for alkali boil out, steam blowing and chemical cleaning has to be carried out at site. The same have to be removed and returned to the BHEL stores after the completion of activity. Rates quoted for application of wool for boiler and auxiliaries will be applicable for this work also. No separate payment will be made for removal of temporary insulation and return of the same to BHEL stores/yard.~~

14.17

In certain instances, co-ordinated/phased application of cast able refractory/ insulation on pressure parts etc. may be necessitated in consideration of sequence of activities of other erection agencies. Contractor shall do such phased work as may be directed by BHEL.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XIV LINING AND INSULATION

14.18

Prior to application of refractory bituminous painting on the ~~pressure parts~~ and other area is under Contractor scope. The bituminous paint will be arranged by Contractor within the quoted price. No separate payment will be made for application of paint.

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PAINTING

15.1

All exposed metal parts of the equipment including piping, structures, railings etc. wherever applicable, after installation unless otherwise surface protected, shall be first painted with at least one coat of suitable primer which matches the shop primer paint used, **after thoroughly cleaning all such parts of all dirt, rust, scales, greases, oils and other foreign materials by wire brushing**, and the same being inspected and approved by BHEL engineer for painting. Afterwards, the above parts shall be finished with two coats of alloyed resin machinery enamel paints.

15.2 Touch-up painting on damaged areas -

a) For coatings damaged up to metal surface

Surface preparation shall be carried out by manual cleaning. minimum 6 inches adjoining area with existing coating shall be roughened by wire brushing, emery paper rubbing etc., for best adhesion of patch primer.

Primer coat of touch-up primer to be applied by brush immediately after the surface preparation. Over this primer coat, finish coat and final finish coat shall be applied as covered above by brush within maximum seven (7) days of application of touch up primer.

However, for execution only the latest document shall be applicable and no claim whatsoever shall be entertained in case of any variance between such documents. Similarly, documents as provided progressively during the execution of work for all other products/ equipment"s etc. shall be applicable.

15.3

Painting of welded areas / painting of areas exposed after removal of temporary supports / touch-up painting on damaged areas of employer"s structures, where inter-connection, welding / modification etc. has been carried out by the bidder.

(a.) clean the surface to remove flux spatters and loose rust, loose coatings in the adjoining areas of weld seams by wire brush and emery paper.

(b.) painting procedure to be followed as mentioned above for touch-up painting on damaged areas.

15.4

The scope of work includes painting of color bands, lettering, marking and signs for direction of flow/rotation, names etc. of approved colors as per the standard color codes and specifications specified in tender specification or as advised by BHEL/customer engineer at site for the equipments/ components covered in these specifications. Applicable paints and primer shall be arranged by Agency within the quoted price.

15.5

All exposed metal parts of the equipment including structures, hand railing, grating etc. shall be thoroughly cleaned off dust, rust, scales and other foreign materials by manual or mechanized wire brushing, scrapping, sand blasting etc. and the same being inspected and approved by BHEL/customer engineer before application of primer. Afterwards, the above parts shall be finish painted with specified number of coats as per specification.

15.6

In certain isolated instances where it is not possible to clean the equipments as explained above, cleaning by grinding might have to be resorted to. No damage to the equipment/components should be caused.

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TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XV PAINTING

15.7

Surface to be painted should be free of oil and grease. It should be removed by using suitable cleaning agents including permitted solvents. Surface cleaned by chemical agent, if required, shall be treated further as prescribed in use of such cleaning agents. The Contractor at his own cost shall provide all the consumables and application implements.

15.8

During the preparation of surface, if the shop coat is damage by chemical cleaning or by mechanical means, Contractor shall repair the same free of cost to BHEL. Agency will make available the necessary primer and paints.

15.9

Specified drying time shall be permitted from one to another coat.

15.10

This work requires working at higher altitudes from ground level to as high as 90 m and more. The work spread is also substantial involving substantial run of structures and piping. Contractor shall take sufficient precautions to avoid any accident and hazard in all respects. The ropes, ladders, scaffolding materials, clamps etc. and climber used should be of standard quality for safe and smooth execution of work.

15.11

Contractor shall carry out the work in such a way that other erected equipment, structure, civil foundations and other property are not damaged. For damages in any of such cases due to lapses by Contractor, BHEL shall have the right to recover the cost of such damages from the Contractor.

15.12

Contractor shall take due care to cover/protect the equipment which are already painted while carrying out the painting of other adjacent equipment. If so happens, it shall be cleaned and repainted by the Contractor without any extra charges.

15.13

In general, painting of structural parts and color bands, lettering, marking of direction of flow/rotation etc. will be carried out by brush painting. However, areas/equipments inaccessible for manual painting have to be painted by spray painting. The decision of BHEL engineer, in this regard, shall be final and binding on the Contractor. For the purpose of spray painting, air at one point will be made available by BHEL free. Laying of air hose pipe and any other line required shall be done by Contractor at his cost. The Contractor shall provide spray equipment set.

15.14

The Contractor shall provide all the necessary scaffolding materials, temporary structures and necessary safety devices etc. during execution of the work.

15.15

Final painting work shall be started after obtaining clearance from BHEL engineers and as per his instructions.

15.16 PRIMER AND PAINTS FOR FINAL PAINTING

All primer and paints (including Black Bituminous paint) required for final painting shall be in the scope of the contractor within the quoted price.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XVI TESTING, PRE-COMMISSIONING, COMMISSIONING

16.1 Testing, pre-commissioning, & commissioning will involve, though not limited to these, various testing e.g. ~~hydro-static pressure, pressure decay tests~~, leak test, trial runs of equipments; flushing by air, water, oil, steam as applicable; checking/setting various clearances/ parameters, ensuring operation of various equipments free of undue restrictions, ~~chemical (EDTA) cleaning & alkali boil out of boiler, steam blowing of the boiler and the critical piping, floating of safety valves, coal firing, trial operation and loading etc.~~ are some of these activities. All the activities for commissioning of the set, as informed by BHEL from time to time shall be completed.

16.2

All these tests should be repeated till all the equipments satisfy the requirement / obligations of BHEL to their client and also the relevant statutory authority.

16.3

~~Contractor shall lay / install necessary temporary piping, pumps, valves, blanks, gauges, cables, switches etc. for conduct of hydraulic / pressure test, chemical cleaning, steam / air blowing etc. this may involve cutting of some portion of existing piping / valves, placing of rubber wedges / blanks in the valves and other openings, fabrication and installation of temporary tanks for chemical mixing, temporary access platforms to mixing tanks etc. Where required, bends have to be fabricated / formed at site from random length / size of pipes / structural steel. Temporary installation itself has to be tested, tried, and subject to non-destructive examinations as per the instructions of BHEL as part of work.~~

~~No payment will be made for temporary installations made for hydraulic testing of various systems & piping. Similarly no payment will be made for electrical installations made for any temporary system.~~

16.4

All materials, equipments necessary for installation of temporary system as above will be supplied by BHEL as free returnable issue in random sizes / lengths. However, servicing, fabrication, erection, dismantling of the same after completion of the process, and handing over back to BHEL stores will be the responsibility of the Contractor.

In accounting of materials following wastage allowances are provided:

1. Structural items: 5%

2. Pipes: ~~3%~~

No wastage allowance for valves & other equipment"s.

16.5

Fabrication, fit-up, pre-heating, welding, post-weld heating and post-weld-heat treatment if any, of requisite blanks for conduct of hydraulic test / leakage test is part of work. Similarly, removal of blanks, restoration and normalization of the concerned system / line is to be done as part of work. BHEL will provide the material for blanks free of charge. No separate payment is envisaged for these activities.

16.6 Overhauling, cleaning, servicing of tanks, pumps, equipments, valves, during erection and commissioning stages are in the scope of work. **Gaskets, packing & spares for replacement will be provided by agency.**

16.7

After chemical cleaning / pickling of lubricating system (including oil piping, oil tank and other fittings) of rotating machines, oil flushing for lubricating systems as per instructions of BHEL engineer shall be carried out. Cleaning of oil tank of lubricating oil system of rotating machinery before and after oil flushing is in the scope of work.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XVI TESTING, PRE-COMMISSIONING, COMMISSIONING

16.8

Transportation of oil drums from customer's / BHEL's stores, filling of oil for flushing, first fill of lubricants and subsequent topping up during trials, tests and commissioning is included in the scope of this contract. The Contractor shall have to return all the empty drums to the customer / BHEL stores. Similarly, for various pre-commissioning / commissioning activities / processes mentioned in various clauses, transport of chemicals from BHEL / customer's stores, charging of chemicals into the system and returning of remaining chemicals and the empty containers of the chemicals to customer / BHEL stores is the responsibility of the Contractor.

16.9

During trial runs/ tests, pre-commissioning / commissioning, replacing / changing mechanical / other seals of equipments like pumps, removal and cleaning / replacing of filters etc. is within the scope of work. Replacement spares for this purpose will be provided by BHEL.

16.10

In case any defect is noticed during tests, trial runs of all equipments and their auxiliaries, such as interferences, rubbing, loose components, abnormal noise or vibration, strain on connected equipment etc. the Contractor shall immediately attend to these defects and take necessary corrective measures. Readjustment and/or realignment, if necessary, shall be done as per BHEL engineer's instructions. Claim, if any, for these works shall be governed by relevant clauses of General conditions of contract provided the cause of such work is not attributable to the Contractor.

16.11

✓ Contractor shall cut / open / dismantle work, if needed, as per BHEL Engineer's instructions during commissioning for inspection, checking and make good the works after inspection is over.

✓ Similarly, during the course of erection, if certain portion of equipments erected by the Contractor has to be undone for enabling other Contractors / agencies of BHEL / customer to carry out their work, Contractor shall carry out such jobs expeditiously and promptly and make good the job after completion of work by other Contractors / agencies of BHEL / customer as per BHEL engineer's / agencies of BHEL / customers instructions. Claims, if any, in this regard shall be governed as clauses of General conditions of contract

16.12

During this period, though BHEL/ client's staff will also be associated in the work, the Contractor's responsibility will be to arrange for complete requirement of men and required tools and plants, consumables, scaffolding and approaches etc. till such time the commissioned unit undergoes trial operations.

16.13

Commissioning activities will continue till the completion of trial operation. During this period Contractor shall make available the services of separate dedicated workforce comprising of suitable skilled and semi-skilled / un-skilled workmen and supervisory staff along with necessary tools and plants, consumables etc.

16.14

It shall be specifically noted that the Contractor may have to work round the clock during the pre-commissioning and commissioning period along with BHEL Engineers and hence considerable overtime payment is involved. The Contractor's quoted rates shall be inclusive of all these factors.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XVI TESTING, PRE-COMMISSIONING, COMMISSIONING

16.15

The Contractor shall carry out any other tests as desired by BHEL engineer on erected equipment covered under the scope of this contract during testing, pre-commissioning and commissioning, to demonstrate the completion of any part or whole of work performed by the Contractor.

16.16

~~At various stages of completion boiler has to be preserved against corrosion either by wet preservation or by dry preservation as per the requirement of BHEL Engineer. Contractor shall carry out the entire incidental jobs like filling up of water, dosing of chemicals and pressurizing the system to the required pressure, change of gas refills etc. The boilers have a permanent N₂ blanketing arrangement.~~

~~During this period, though BHEL/ client's staff will also be associated in the work, the Contractor's responsibility will be to arrange for complete requirement of men and required tools and plants, consumables, scaffolding and approaches etc., till such time the commissioned unit is taken over.~~

16.16

~~Commissioning activities will continue till the completion of trial run, trial operation. During this period Contractor shall make available the services of separate dedicated labor force comprising of suitable skilled and semi/un-skilled hands along with necessary tools and plants, consumables etc.~~

16.18

It shall be specifically noted that the Contractor may have to work round the clock during the pre-commissioning and commissioning period along with BHEL engineers and hence considerable overtime payment is involved. The Contractor's quoted rates shall be inclusive of all these factors.

16.19

~~Conducting of performance guarantee test is in the scope of work. Contractor shall install all necessary tapping points; instruments etc. and provide necessary assistance in this regard.~~

~~In case PG test is getting delayed beyond the contract period (normal plus extension if any) due to reasons not attributable to the Contractor, PG test issue will be mutually discussed and decided. However installation of necessary tapping points, impulse pipes, approaches etc. are to be completed by the Contractor.~~

16.20

The Contractor shall carry out any other tests as desired by BHEL engineer on erected equipment covered under the scope of this contract during testing, pre-commissioning and commissioning, to demonstrate the completion of any part or whole of work performed by the Contractor.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XVII Schedule of BOQ AND WEIGHTAGE factor OF INDIVIDUAL ITEMS

SN	DESCRIPTION OF WORK	Qty (A)	Unit	Unit Rate (₹) (B) (To be derived)	Total Amount (₹) C= A*B (To be derived)	Weightage factor w.r.t Total price quoted by the bidder (X)
1	Structure	1,156.31	MT			0.49865309857370400
2	Pressure Parts	34.67	MT			0.01998223785741450
3	Non Pressure Parts	1,000.53	MT			0.44573715188487700
4	Insulation- Iron Parts	5.67	MT			0.00258107080455365
5	Insulation- Cladding Sheets	10.02	MT			0.00503866426804053
6	Insulation- Wool Mattress	75.09	MT			0.02800777661140970

Note: The quantity indicated in the BOQ is approximate only and is liable for variation. Payment will be as per actual quantity executed as certified by BHEL Engineer above Unit rate of individual items of BOQ.

Instructions to the Bidders

- Bidders shall quote Total Price for the entire scope of work in Rupees in VOL II PRICE BID at BHEL E-procurement Portal.** Any other entry elsewhere in the offer of the bidder shall be treated as Null and Void.
- Unit rate (B):** BHEL has pre-fixed the Weightage Factor w.r.t Grand Total Price quoted by the bidder for entire scope of subject tender, as detailed above in this chapter. Considering these BHEL pre-fixed the Weightage factor w.r.t the total price quoted by the bidder (I.e. 'BHEL pre-fixed the Weightages factor (x)' X 'Grand total price' / Quantity of individual Item (A)). *Item Rates* of individual items shall be derived, this will be rounded off to two decimal places.
- Total amount of the respective items shall be derived by multiplying respective Rates (B) and by respective quantities (A).
- Bidders to note that this is an item rate contract.** Payment shall be made for the actual quantities of work executed at the unit rate arrived at as per SI No. 2 as applicable.
- For the convenience of bidders, BHEL has issued an **Excel Sheet For Calculation Purpose Only- 2571** with all the requisite formulae as described above. **However the referred excel sheet shall not form part of contract document. Further, this sheet should not be uploaded at the e-Portal.**

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Annexure 1

Annexure 1

Guidelines for NDE and Heat Treatment Agency-PSWR

GUIDELINES OR SELECTION OF NDE AND HEAT TREATMENT AGENCIES AT SITE

(to be deployed by BHEL's E&C Associates)



Bharat Heavy Electricals Limited

Power Sector Western Region

Nagpur - 440001

Doc. No. : PP-QLY-AA-DC-106/01-20

Rev. No. : 0



PSWR : QLY & BE

Guidelines for Selection of NDE and Heat Treatment Agencies at Site (to be deployed by BHEL's E&C Associates)

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1.0 Object

Object of the guidelines is to enable BHEL engineers to make informed decision regarding selection/acceptance of NDE & Heat Treatment agencies; those are deployed by BHEL's E&C associates at site and to evaluate the performance of the agencies.

2.0 General Guidelines

- A. BHEL's E&C associates have to take prior permission/approval before deployment of NDE & Heat Treatment agencies at site. All relevant documents along with the filled-up format as per Annex-A & Annex-B to be submitted by BHEL's E&C associates.
- B. The personnel, proposed by the agency for NDE, should have sufficient experience in testing of welds/castings/forgings/plates and should be capable to interpret the given procedure and carry out the test. Trained, experienced and certified personnel qualified as Level I / II / III (as required) as per SNT-TC-1A of ASNT or BSEN 473 of EN through ASNT / ISNT / CSWIP or its Accredited Agencies should only be deployed.
- C. The personnel, proposed by the agency for Heat Treatment job, should have sufficient experience in heat treatment of welds/castings/forgings/plates and should be capable to interpret the given procedure and carry out the test.
- D. On receipt of proposal along with all necessary supporting documents from E&C associates at site, concerned BHEL Erection engineer & BHEL FQA engineer shall jointly review the proposal and record the details of the accepted agencies as per Annex-C and share with the Construction manager and Head/ Quality & BE/ BHEL-PSWR HQ.
- E. The FQA engineer shall also take necessary clearance / acceptance from customer, if required, before acceptance of the proposed agency and maintain a record for that. If customer approval is not required, prior intimation shall be given to the customer through memo.
- F. The NDE / Heat Treatment agency shall meet the requirements of this document plus any additional qualification requirements specified in latest revision of the BHEL NDE Manual (AA/CQ/GL/011 Part III-NDEM), as applicable.
- G. Based on the feedback from BHEL FQA engineers, a controlled list (with revision number & date) of accepted NDE & Heat Treatment agencies with their BHEL-approved personnel shall be maintained by PSWR-HQ Quality department and this list shall be uploaded in PSWR intranet portal.
- H. Monthly performance of the accepted agency/s shall be monitored by BHEL FQA Engineer and the evaluation report to be sent to Head/ Quality & BE/ BHEL-PSWR HQ, in MSQR.
- I. The agency may be disqualified/debarred on following grounds:
 - i. if a re-inspection of material or a recheck of NDE / Heat Treatment data shows significant variation from the agency's report, as determined by BHEL FQA engineer
 - ii. if a significant discrepancy or issue (viz. or malpractices like usage of modified/ manipulated Reports/ Charts, other fraudulent activity) is noted during the process audit / routine site inspection..
 - iii. if any of the agency's BHEL-approved personnel has changed without taking prior approval from BHEL FQA In-charge.



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- iv. if the equipment mobilized by the agency no longer meets the requirements for approved usage.
- v. if the Agency is not able to ensure re-qualification of his personnel/ equipment on expiry of certification or is not able to replace such personnel/ equipment in time with permission of the FQA.
- J. The debarred / disqualified agency may apply for re-acceptance **only** after three months with a written clarification of its previous misconduct and corrective action taken to avoid occurrence of the same incidence. A standing committee of FQA Engineers shall be constituted by Head/Quality & BE/PSWR, which shall scrutinize the documents
- K. If, for any of the above reasons, the agency is debarred / disqualified, the same shall be immediately intimated by BHEL FQA engineer to Head/ Quality & BE/ BHEL-PSWR Site CM and Main Sub-Contractor with intimation for immediate replacement.. The same shall be updated in controlled list of accepted agencies.
- L. This guideline does not specifically provide any recommendation for safety measures to be taken during NDE & Heat Treatment work. Suitable safety analysis & hazard identification is to be done at site as per the project HSE manual & standard OCP.

3.0 Specific Guidelines for selection of NDE Agency for PAUT (Phase Array UT)

- A. The NDE agency should have executed at least 30% of the proposed work quantity in a single job. In case, multiple agencies are proposed to be deployed, each agency should have executed at least 30% of proposed quantity in a single job. The necessary documents (viz. copy of Work Order, End User Performance Certificate, etc.) for above to be produced by agency.
- B. The Agency to submit their organizational setup, supervision arrangement and list of resources to be deployed at site.
- C. For PAUT, the agency shall be capable of mobilising the PAUT equipment & accessories and manpower as follows –
 - i. **PAUT equipment:** Omni scan MX/MX2/X3 or equivalent Phased Array equipment shall be used coupled with Scanner (16:68 or higher configuration), having
 - Weld inspection features including setting up of weld profile.
 - Multi grouping capability.
 - Capability of using two PAUT probes simultaneously. Necessary adapter/splitter (if required) for attaching two probes for simultaneously working should be available for inspection.
 - Operation with battery.
 - A-scan, B-scan, C-scan, S-scan, Linear scan, Sectional scan
 - Calibration: Velocity, Wedge delay, Sensitivity, TCG, DAC, Encoder calibration features.
 - Data analysis and report building
 - Encoder recognition.



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- Probes: At least two numbers of low profile suitable PAUT probes for (MS and Alloy Steel) of 7.5 -10 Mhz frequency, 16-32 element with more than 2 meters of cable length. The probes shall have couplant supply mechanism (passage of couplant) to test surface & required accessories for the same.
- Suitable probes for SS to be made available for inspection of SS joints.
- For Circumferential weld Inspection of Small-Diameter Pipes Advanced semi-automated scanning equipment/ Cobra scanner
- ii. **Wedges:** Specially designed wedges to fit in the above probes and having reference angle of 50 to 60 Degree shear wave in steel will be required. Wedges should have suitable contour to fit around required range of tubes OD (NORMALLY 25 T 100mm).
- iii. **Scanner:** A manual/automated scanner capable for scanning of required OD (normally 25 mm to 100 mm) tubes. The scanner should have encoder with it for precise data acquisition. The scanner should be able to hold two low profile phased array probes and wedges, as mentioned above for complete inspection of the weld in one rotation of the scanner. The design of scanner, probe & wedges shall allow complete inspection of circumferential weld on tube having gap more than 15 mm with any adjacent tubes, supports and structures etc.
- iv. **Manpower:** The NDE agency shall deploy minimum two persons for performing non-destructive testing. They shall be qualified and certified in accordance with DE written practice for Training, Examination, and Qualification & Certification of NDE Personnel as PAUT Level-II. The personnel who acquire the data, scan the job, does the calibration and analyse Phased Array data shall be trained on same specific technique and certified as PAUT level II. However, data evaluation and analysis shall be performed by a PAUT Level II or UT Level III. The necessary document/certificate for above to be produced by agency.
- D. **Test Plan / Scan Plan:** The agency shall be capable of submitting the written inspection procedure for PAUT of weld complying with the requirement of latest BHEL NDE Manual (AA/CQ/GL/011 Part III-NDEM), duly approved by a UT Level-III person. The procedure / test plan shall be qualified at site as per latest BHEL NDE Manual (AA/CQ/GL/011 Part III-NDEM).
- E. **Calibration:** Velocity, wedge delay, sensitivity, TCG, encoder calibration shall be performed by PAUT operator before inspection and as per frequency of code. Verification shall be done by BHEL FQA engineer regarding competency of the personnel deployed by the agencies, prior to start of job.
- F. **Reference block:** Tubes with similar dia & wall thk (within 10% as per code) and circumferential notches/grooves shall be used as reference block. The reference block should have length not less than 200 mm. It should have two circumferential grooves/notches (one each on ID & OD) having depth of 10% of wall thickness. 1 to 1.5 mm width & length between 25 to 50 mm. These two grooves should be located at opposite ends of the tube. The notches should be separated from adjacent tube edge by about 50 mm. These two grooves should be located at opposite ends of the tube. The notches should be separated from adjacent tube edge by about 50 mm. The length of reference block and



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location of reflectors (notches/grooves) should comply the requirement of calibration for angle beams. Agency to take tube samples in advance so that Machine calibration work can be completed before start of work.

- G. **Data Storage:** The calibration data and inspection data should be in the equipment and should be available for verification. Inspection data file to be stored by giving identifiable marking for reporting & interpretation. Agency must be capable to hand over data in suitable media (DVD / Flash Drive).
- H. **Test Result:** The test result submitted by the agency for each tested tube should provide information on type of defects (like lack of penetration, porosity, lack of fusion etc), their location, length, height, depth etc. The final report with above information to be given in an excel sheet along with PAUT inspection data file & images for all the tested joints. Sample copy of test result of previous job to be submitted by the agency.

4.0 Specific Guidelines for selection of NDE Agency for RT (Radiography Test)

- A. The NDE agency should have executed at least 30% of the proposed work quantity in a similar single job. In case, multiple agencies are proposed to be deployed, each agency should have executed at least 30% of proposed quantity in a similar single job. The necessary documents (viz. copy of Work Order, End User Performance Certificate, etc.) for above to be produced by agency.
- B. Agency will submit their organizational setup, supervision arrangement and list of radiography sources to be deployed at site.
- C. Agency to submit the documents of BARC / AERB Level I & II personnel for doing RT & Interpretation of films, respectively. Personnel's skill & capability will be reviewed by FQA before engaging them in job.
- D. The agency shall comply with all safety norms as per BARC/AERB & agency must submit source movement authorization for the subject site from BARC/AERB before start of work. The source movement within the site shall also be maintained by the agency in the log book. The agency shall fulfil all the safety precautions as per statutory requirements including Radiological safety at their own cost.

E. Manpower & Resources:

- i. For a single unit, The agency shall deploy one BARC/AERB certified site in-charge and minimum of two numbers of BARC/AERB qualified Level-I radiographers for deployment of each number of source and one number of Trained, experienced and BARC/AERB qualified RT Level-II film interpreter. Personnel's skill & capability will be reviewed by FQA before engaging them in job.
- ii. Agency shall mobilize one full time Radiation Safety Officer (RSO) and one site in-charge at site and maintained as per BARC and BHEL OCP guidelines.
- iii. For a single unit, the NDE agency shall have permission from BARC/AERB for mobilizing a minimum of two radioactive sources (as per contractual guidelines) of sufficient strength all the time (minimum of 10 Curie). The source should be replaced immediately after decay to 10 Curie. Agency shall be capable to arrange additional source on emergency.



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- iv. The Agency has to submit the decay chart and all records regarding movement of the source.
 - v. The agency should be responsible for security of their source in the plant or during movement of camera at site.
 - vi. All employees of the agency to use TLD badges & pocket dosimeters while doing radiography testing at site. Also submit annual dose report of radiation workers.
 - vii. The agency to calculate cordon-off distance & provide 'Radiography warning sign boards & symbols' with cordon-off rope & warning alarm while carrying out the radiography.
 - viii. Radiography team to be available at site round the clock
 - ix. Equipment, Film and other consumables used shall be BHEL approved brands.
- F. Agency has to demonstrate and establish various parameters for the quality of radiograph (e.g. Image density, sensitivity, source size, source to film distance, geometric unsharpness etc.,) to the satisfaction of BHEL.

5.0 Specific Guidelines for selection of NDE Agency for UT & MPI

- A. The NDE agency should have executed at least 30% of the proposed work quantity in a similar single job. In case, multiple agencies are proposed to be deployed, each agency should have executed at least 30% of proposed quantity in a similar single job. The necessary documents (viz. copy of Work Order, End User Performance Certificate, etc.) for above to be produced by agency.
- B. Agency will submit their organizational setup, supervision arrangement and list of resources to be deployed at site.
- C. For a single unit, the NDE agency shall deploy a minimum of two number Digital type Pulse Echo A Scan UT equipment (preferably of OLYMPUS, EINSTEIN-II & Krautkramer) along with required calibration block at site.
- D. For a single unit, the NDE agency shall deploy a minimum of two numbers of Trained, experienced and certified Level-I UT technicians and one number of Trained, experienced and certified Level-II Interpreter in UT.
- E. For a single unit in MPI work, the NDE agency shall deploy a minimum of two sets of magnetic yokes, pie indicators, iron oxide particles, colour contrast, etc. Should have portable AC/HWAC equipment delivering current of minimum of 1000 amps and portable AC/DC electromagnetic yokes. Calibrated Equipment/ Ammeters shall be used for testing. The equipment should be capable of testing with visual and fluorescent magnetic particles.
- F. The agency shall deploy a minimum of two numbers of Trained, experienced and certified Level-I technician in MP and one number of Trained, experienced and certified Level-II Interpreter in MPI.

6.0 Specific Guidelines for selection of Heat Treatment Agency

- A. The NDE agency should have executed at least 30% of the proposed work quantity in a similar single job. In case, multiple agencies are proposed to be deployed, each agency should have executed at least 30% of proposed quantity in a similar single job. The necessary documents (viz. copy of Work Order, End User Performance Certificate, etc.) for above to be produced by agency.



PSWR : QLY & BE

Guidelines for Selection of NDE and Heat Treatment Agencies at Site
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- B. Agency will submit their organizational setup, supervision arrangement and list of resources to be deployed at site. This must correspond to the requirement mentioned in Sl. No. F
- C. The T & P's for Resistance Heating being deployed by Heat Treatment agency at site viz. PID Control Heating panels, Thermocouples, heating elements, Recorders shall be of renowned make/ branded having provision for digital display (e.g. temperature, Amp/ Voltage etc.), calibrated and in good working condition. Also to be noted that insulation being used should be in workable condition.
- D. The T & P's for Induction Heating being deployed by Heat Treatment agency at site viz. Induction Heating equipment, induction cables, Thermocouples, auto-recorders shall be of renowned make/ branded having provision for digital display (e.g. temperature, Amp/ Voltage etc.), calibrated and in good working condition. The Induction heating equipment should be inverter type (IGBT H Bridge) and output frequency should be 7.5-10 KHz. Also, to be noted that insulation being used should be in workable condition.
- E. Guidelines of BHEL Heat Treatment manuals shall also be referred.
- F. The agency shall be capable of mobilising required number of machines and against each machine one experienced operator & one technician-cum-electrician must be deployed. One experienced supervision staff must be engaged by the agency exclusively for HT job. Qualification of the supervision staff shall be minimum Diploma in Mechanical/ Metallurgical engineering. The competency of operator & condition of equipment must be verified at site, as elaborated in Sl. No. H.
- G. The agency should have capability of mobilizing flexible ceramic pads as & when advised by BHEL.
- H. One trial Heat Treatment must be conducted by BHEL engineers before acceptance of the HT equipment and the manpower, to assess the competency of the deployed persons and the condition of the machinery. The thickness & material to be selected based on the maximum thickness & material to be heat treated at site. All results to be recorded by BHEL engineer for future reference. The following are to be monitored and assessed -
- 1) For resistance heating process:
 - i. Equipment's condition and calibration documents
 - ii. Competency of the operator to follow SR job card instruction/ WPS instruction
 - iii. Competency of the operator for selection of Resistance coil gauge
 - iv. Wrapping skill of the operator for single tube/pipe
 - v. Wrapping skill of the operator for bunching of tubes
 - vi. Insulating skill of the operator
 - vii. Competency of the operator for Thermocouple fixing skill
 - viii. Competency of the operator for Programming of PID controller
 - ix. Competency of the operator for selection of ROH ROC
 - x. Performance after completion of PWHT
 - 2) For Induction heating process:
 - i. Equipment's condition and calibration documents
 - ii. Competency of the operator to follow SR job card instruction/ WPS instruction
 - iii. Competency of the operator for Induction coil/ annealing cable rotation



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- iv. Wrapping skill of the operator for single tube/pipe
- v. Insulating skill of the operator
- vi. Competency of the operator for Thermocouple fixing skill
- vii. Competency of the operator for programming in auto controller of IHE
- viii. Competency of the operator for selection of ROH ROC
- ix. Performance after completion of PWHT
- x. Competency of the operator to download PWHT graph from auto controller recorder

One mock power failure shall be staged during the trial process to verify readiness of the agency & BHEL's E&C associate for contingency. Acceptability shall depend on the hardness achieved (as measured by UCI machine)

7.0 Revision of this Guidelines

- A. Revision in this Guideline, as may be felt from time to time shall be decided by the standing committee of FQA Engineers constituted by Head/Quality BE/BHEL-PSWR.

Application for approval of NDE / Heat Treatment Agency at*(Name of Project)*

Name of the NDE / Heat Treatment Agency :

Address :

Name of the Proprietor :

PAN / TIN of agency :

Contact No. :

Email address :

1. Details of Qualified / Certified NDT Personnel (ASNT / ISNT)
(Including BARC certified Radio grapher-RT-1, Site In-charge-RT-2, RSO)

Sl. No.	Name	NDT Method	Level	Date of first Certification	Certificate Valid upto	Certifying Authority

2. Details of Heat Treatment Personnel

Sl. No.	Name	Qualification	Previous Experience

3. Details of NDE / HT Equipment proposed to be mobilised

Sl. No.	Equipment (Make/Model)	Type (RT/ UT/ MPI/ PAUT/ HT)	Quantity	Specification / Rating	Calibration Status	Capacity of the Equipment

4. Details of Previous work done (in past 3 years):

Sl. No.	Project Name & Customer	Type of Job (RT/ UT/ MPI/ PAUT/ HT)	Number Tube Joints completed	Number of Pipe Joints Completed

.....
 Signature of the Owner of the Agency & seal

.....
 Signature of BHEL's E&C Associate & seal

Note : Applicant shall submit supporting documents along with this application and fill the Annex-B

Check list for Annex-A

Note : Applicant shall fill the following details and no column shall be left blank		
Sl. No.	Description	
A.	Name of the Proposed Agency	
B.	Quantum of job being proposed for the agency	
C.	Copy of agencies Govt. Registration	Page no.
D.	Duly filled in Annex-A	Page no.
E.	Certificates for Individuals as mentioned in Sl. No. 1 of Annex-A (Not applicable for HT agency)	Page no. from to
F.	AERB approval certificate (for RT agency Only)	Page no. from to
G.	Supporting documents for previous work Experience as mentioned in Sl. No. 2 of Annex-A	Page no. from to
H.	Supporting documents for previous work Experience as mentioned in Sl. No. 3 of Annex-A	Page no. from to

.....
Signature of BHEL's E&C Associate & seal

Annex-C

Agencies Authorised for conducting NDE / Heat Treatment at

(Name of Project)

Date :

Proposed By (Name of BHEL E&C Associate) :

SL. No	Name & Address of Agency	Type of Job (RT/ UT/ MPI/ PAUT/ HT)	Name of the Persons	Method	Level	Certificate Valid upto	Contact Person, Contact number

Tick (v) applicable

1. Credentials of the above agencies have been reviewed as per Guideline and found acceptable.
2. Trial Heat Treatment has been performed by the HT agency and found to be satisfactory
3. The agencies' personnel have been interviewed and found to possess knowledge of the process & equipment

.....
(BHEL Erection Engineer).....
(BHEL FQA Engineer)**Distribution:**

1. Construction Manager / BHEL Site
2. Head / Quality & BE, BHEL-PSWR

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Annexure 2

Annexure 2

11701_LAYOUT_OF_SCR_DUCTING_010819

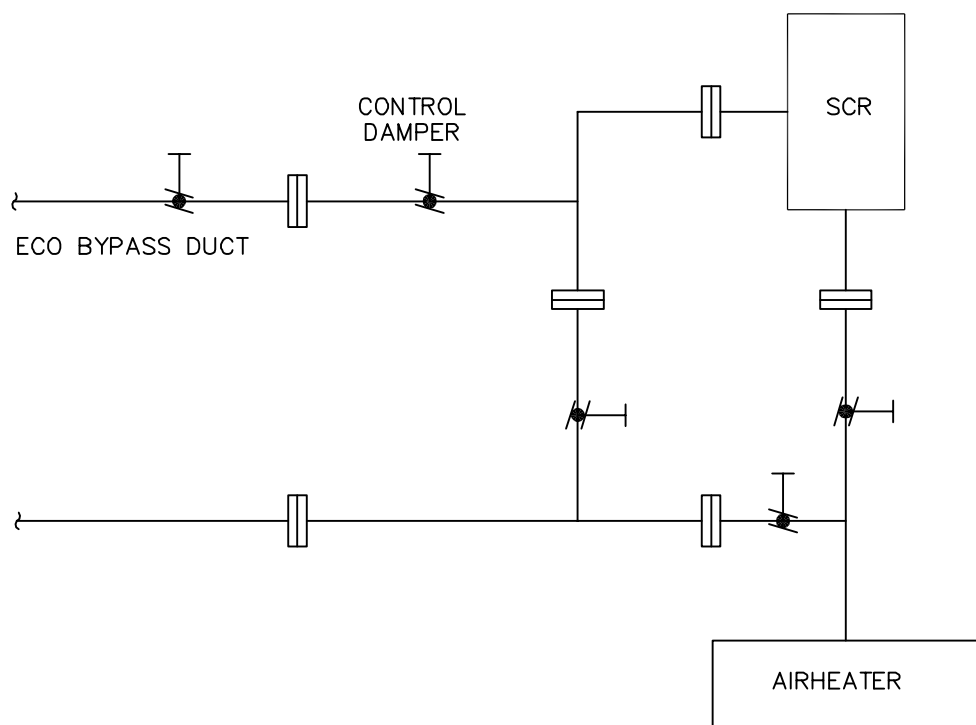
TECHNICAL CONDITIONS OF CONTRACT (TCC)

Annexure 3

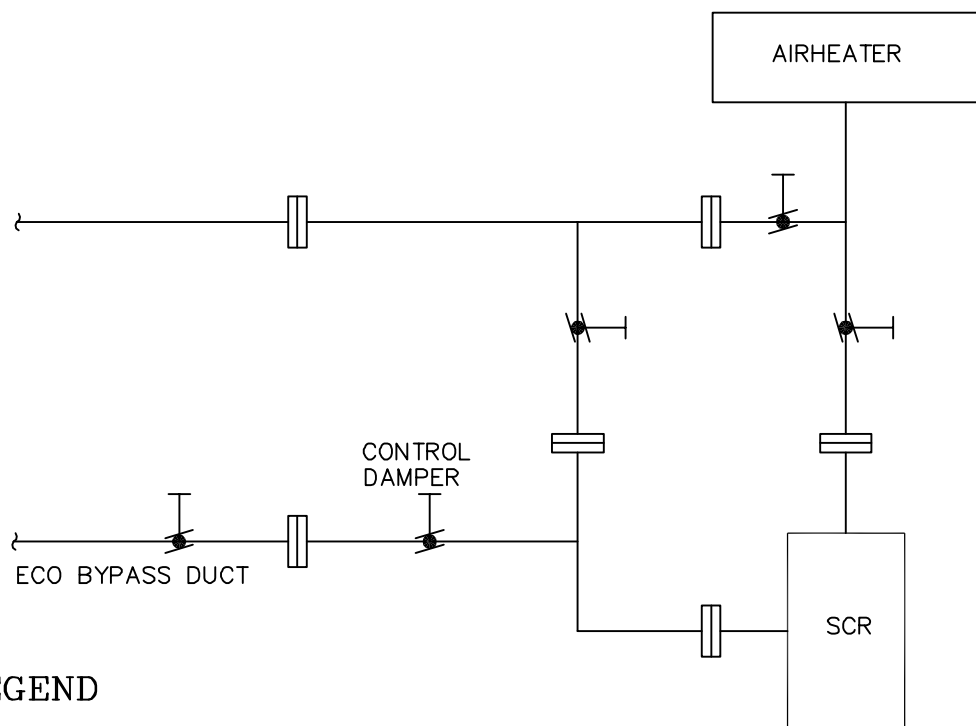
Annexure 3

10857_SCR_flow diagram

SCHEMATIC ARRANGEMENT OF SCR



FROM ECONOMISER



LEGEND



BI-PLANE DAMPER



NON METALLIC EXPANSION JOINT



GATE