

Enquiry GEM / 2022/ B/ 1940213 dt. 10.02.2022- Procurement of BW Fittings (SA234W PB-W) for PGB System

Techno-Commercial Terms

S No	BHEL requirement	Bidder response
1	Quotation no	
2	Quotation date	
3	Currency of quote	
4	Applicable GST % shall be indicated	
5	<u>Technical requirements-</u> 1) TDG 7430:007 Rev 00 is applicable. All fittings and flanges shall be manufactured and supplied as per applicable Drawings, TDG and Customer approved QP. 2) Successful Bidders getting orders shall submit Quality Plan and related procedures for manufacturing to BHEL inline with TDG for approval by BHEL/ Customer before proceeding with further execution of order. 3) Packing procedure shall be as per PC-PKG-01. 4) EP shall be as per item drawings enclosed with tender.	
6	<u>Technical deviations (if any)-</u> Bidders may note that except for the deviations listed in the 'Enquiry Deviation Format', the bid shall be deemed to comply with all the requirement in the bidding documents and the bidders shall be required to comply with all terms, conditions and specifications of the bidding documents irrespective of any mention to the contrary, anywhere else in the bid. Deviations taken by vendors (if any) are subject to BHEL approval. If deviation format is not submitted by bidder, it will be construed that the bidder complies to all the technical requirements of BHEL without any deviation.	
7	<u>Bid validity-</u> 90 days from the date of Part I bid opening or 60 days from date of Reverse Auction whichever is later	
8	<u>Delivery period-</u> 5 months from LOI / PO date. (4 months for manufacturing and supply by supplier from date of QP & procedures approval+ 10 days for supplier to submit manufacturing QP and relevant procedures+20 days for approval by BHEL/ NPCIL for QP/ Procedures approval)	
9	<u>Delivery term-</u> 'FOR' NPCIL Kudankulam Site (all inc of P&F, F&I, testing, inspection charges etc).	
10	<u>Inspection-</u> Inspection shall be as per BHEL TDG, Drawings and customer approved Quality Plan.	
11	<u>Liquidated Damage clause-</u> 0.5% of the price for each week of delay upto a maximum of 10% of the price of delayed / undelivered portion. For the purpose of LD calculation, LR date will be considered. In case of deviation to BHEL's standard LD terms, loading will be applicable and will be limited to the extent to which it is not agreed to by the bidder.	
12	<u>Evaluation & Ordering-</u> 1. Evaluation of bids and ranking of bidders shall be done based on total value package wise. Bidder shall quote for all items of a package mandatorily. 2. Ordering will be done for all the items of the package/ (s). (based on the item price break-up provided by L1 bidder of package). 3. Minimum Order Quantity (MOQ) / Minimum Order Value (MOV) condition will not be accepted. Bids of such bidders (if	
13	<u>Payment term-</u> 1. 100% payment within 60 days of issue of CRAC. 2. For MSE bidders Payment shall be as per MSE Clause subject to submission of relevant documents (100% payment within 45 days of issue of CRAC). No other payment terms will be accepted. If bidders propose for any other payment term other than indicated above, such bids will be rejected.	
14	<u>Price Finalization by Reverse Auction-</u> BHEL shall be resorting to Reverse Auction (RA) for price finalization. RA shall be conducted in GEM portal as per GEM logics.	
15	<u>Cancellation / termination of contract, default / breach of contract and risk purchase-</u> As per BHEL's Standard Cost and Risk clause indicated in Annexure A enclosed. By submitting the bid, vendor explicitly accepts to BHEL's requirement. Bids deviating from BHEL's standard condition will be rejected.	

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S No	BHEL requirement	Bidder response
16	<u>Purchase Preferences for the Enquiry-</u> If Make in India preference is applicable as per Annexure A to NIT, declaration format as per NIT shall be submitted. In the event of non-submission of declaration, purchase preference will not be extended to bidders.	
17	<u>Purchase Preferences for the Enquiry-</u> If MSE preference is applicable as per Annexure A to NIT, supporting documents as per NIT shall be submitted. In the event of non-submission of supporting documents, purchase preference will not be extended to bidders.	
18	All other terms and conditions other than those indicated above shall be as per Annexure A- General Terms and Conditions enclosed.	
19	General note- Any disparity to terms indicated above, Annexure A and bidders offer, only the agreed terms and conditions above / Annexure shall stand valid. Bidders terms and conditions which are in conflict will be ignored and will not be taken into consideration by BHEL.	

Enquiry GEM / 2022/ B/ 1940213 dt. 10.02.2022- Procurement of BW Fittings (SA234WPB-W) for PGB System											
Unpriced Bid											
Package No.	Package item No.	Material Code	Material Description	SYSTEM	Material Specification	Method of construction	Applicable drawing no	Applicable TDC	EP details (D1 value)	Net qty (Nos)	Quoted / Not Quoted
1	1.1	925043540000	BW 90 DEG ELBOW (WELDED) OD720X8	PGB	SA234WPB	Welded	4-N0-473-00035	TDG:7430:007	As per Drawing	8.00	
	1.2	925043550000	BW 90 DEG ELBOW (WELDED) OD530X8	PGB	SA234WPB	Welded	4-N0-473-00036	TDG:7430:007	As per Drawing	8.00	
										16.00	

Note-

1. Evaluation will be done based on total value of the package and ordering will be done based on the itemwise price of the package provided by package L1 .
2. Rate to be quoted 'FOR' NPCIL-Kudankulam Site basis (all inc of P&F, F&I, inspection charges etc).
3. L1 bidder of getting order shall submit the Quality plan inline with TDG and applicable standards for approval of BHEL/ Customer before further process.

Item Details for NPCIL-Kudankulam Project																
Matl Group	Material Code	Material Description	Material SPECIFICATION	FITTING TYPES	Applicable TDC	FITTING D1 VALUE	DRAWING_No	Sec Wt	OD (mm)	THK (mm)	Qty (No)	Total Weight (Kgs)	Unit Estimate excl GST (Rs.)	Unit Estimate incl GST (Rs.)	Total Estimate excl GST (Rs.)	Total Estimate incl GST (Rs.)
CS	925043550000	BW 90 DEG ELBOW (WELDED) OD530X8	SA234WPB	ELBOW	7430 007 REV 00	REF DRG	4-N0-473-00036	85.500	530.00	8.00	8	684	49923	58909.14	399384	471273.1
CS	925043540000	BW 90 DEG ELBOW (WELDED) OD720X8	SA234WPB	ELBOW	7430 007 REV 00	REF DRG	4-N0-473-00035	158.000	720.00	8.00	8	1264	89726	105876.7	717808	847013.4
											16	1948			1117192	1318287

Declaration to be issued on Company letter head

In line with Government Public Procurement Order (Preference to Make in India) Order (PPP-MII Order), 2017 vide No. P-45021/2/2017-PP (BE-II) dated 04.06.2020, issued by DPIIT, Ministry of Commerce and Industry, we hereby certify that we, (Supplier name) are

- a) 'Class-I local supplier' meeting requirement of local content equal to or more than 50%,
- b) 'Class-II local supplier' meeting requirement of local content more than 20% but less than 50%,
- c) 'Non local supplier' meeting requirement of local content equal to or less than 20%,

(Strike off whichever is not applicable)

As defined under above referred Order for the following Enquiry Item SI Nos of BHEL Enquiry No GEM/2022/B/1940213 dt 10.02.2022.

- Enquiry Item No./ (s) -

Details of location at which local value addition will be made is as follows:

.....
.....

By issuing this declaration, we understand and are in acceptance to the following-

- False declarations will be in breach of the Code of Integrity under Rule 175(1)(i)(h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151 (iii) of the General Financial Rules along with such other actions as may be permissible under law.
- In case of debarment by any procuring entity for violation of the provisions of the Public Procurement (Preference to Make in India), Order 2017 we shall not be eligible for preference for procurement by any other procuring entity for the duration of the debarment. The debarment for such other procuring entities shall take effect prospectively from the date on which it comes to the notice of other procurement entities, the debarment takes effect prospectively from the date of uploading on the website(s) of The Department of Expenditure, GOI in such a manner that ongoing procurements are not disrupted.
- We undertake the onus of responsibility of submission of appropriately certified documents. We understand that BHEL is not at liability to verify the contents and will not be responsible for the declaration made by us. However, in case BHEL has any reason to doubt the authenticity of the local content, BHEL reserves the right to obtain the complete back up calculations before award of contract and we are liable to submit the same if requested by BHEL. We also understand that our bid is liable for rejection in case we fail to submit the details as requested by BHEL.

Seal and Signature of authorized signatory

Special Note-

In cases of procurement for a value in excess of Rs. 10 crores, the local supplier shall be required to provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content.

BHARAT HEAVY ELECTRICALS LIMITED
PIPING CENTRE, PURCHASE
BHEL / CHENNAI – 600 017

THIRD PARTY NON-DISCLOSURE AGREEMENT

I, _____, on behalf of the _____ (Name of Company), acknowledge that the information received or generated, directly or indirectly, while working with BHEL, Piping Centre, Chennai on contract is confidential and that the nature of the business of the BHEL, Piping Centre, Chennai is such that the following conditions are reasonable, and therefore:

I warrant and agree as follows:

I, or any other personnel employed or engaged by our company, agree not to disclose, directly or indirectly, any information related to the BHEL, Piping Centre, Chennai Without restricting the generality of the foregoing, it is agreed that we will not disclose such information consisting but not necessarily limited to:

- Technical information: Methods, drawings, processes, formulae, compositions, systems, techniques, inventions, computer programs/data/configuration and research projects.
- Business information: Customer lists, project schedules, pricing data, estimates, financial or marketing data.

On conclusion of contract, I, or any other personnel employed or engaged by our company shall return to BHEL, Piping Centre, Chennai all documents and property of BHEL, Piping Centre, Chennai, including: drawings, blueprints, reports, manuals, computer programs/data/configuration, and all other materials and all copies thereof relating in any way to BHEL, Piping Centre, Chennai's business, or in any way obtained by me during the course of contract. I further agree that I, or any others employed or engaged by our company shall not retain copies, notes or abstracts of the foregoing.

This obligation of confidence shall continue after the conclusion of the contract also.

I acknowledge that the aforesaid restrictions are necessary and fundamental to the business of the BHEL, Piping Centre, Chennai and are reasonable given the nature of the business carried on by the BHEL, Piping Centre, Chennai I agree that this agreement shall be governed by and construed in accordance with the laws of country.

I enter into this agreement totally voluntarily, with full knowledge of its meaning, and without duress.

Dated at _____, this ____ day of _____, 20__.

Name

Company

Signature



**PURCHASE / MM / BOI
ENQUIRY DEVIATION**

429-024

PAGE

**SCHEDULE OF DEVIATION TO
BOI ENQUIRY NO:**

GEM/2022/B/1940213 dt. 10.02.2022

DATE

DESCRIPTION

SA23WPB(W)- Elbows for NPCIL-Kudankulam Project

SPECIFICATION

TDG 7430:007 Rev 00

Drawing No

As enclosed with tender

QUALITY PLAN

Vendor Manufacturing QP inline with TDG

PACKING PROCEDURE

PC-PKG-01 Rev 00

DOCUMENT REFERENCE

BHEL CALLED FOR

FIRM'S ALTERNATIVE OFFER

CERTIFIED THAT OTHER THAN THE ABOVE DEVIATIONS, WE ARE ACCEPTING ALL THE OTHER SPECIFICATIONS AND REQUIREMENTS IN FULL TO YOUR ENQUIRY.

STATION:

DATE:

SIGNATURE OF FIRM'S REPRESENTATIVE

FIRM SEAL

NOTE 1. Deviations should be taken only in the extreme case.

2. If necessary, use additional sheets with page control number.

	BHARAT HEAVY ELECTRICALS LIMITED, PIPING CENTRE, CHENNAI	
TDG 7430:007	TECHNICAL DELIVERY CONDITIONS FOR WELDED CARBON STEEL FITTINGS -	DATE : 11.01.2022
REV 00	ASME SA 234 WPB-W - PGB SYSTEM	PAGE: 1 OF 6
PROJECT: NPCIL KUDANKULAM-KKNPP UNIT 3 & 4 -2X1000 MWE		

RECORDS OF REVISION:

REV: 00 DATE: 11/01/2022 DETAILS: FRESH ISSUE.

1.0 SCOPE

This Technical Delivery Conditions specify the requirements for Welded Carbon Steel Fittings (Elbow) ASME SA 234 WPB-W, intended for Nuclear Piping coming under PGB system of NPCIL Kudankulam Unit 3&4 project.

Requirements : As per Drawing, ASME Specification and as listed below
Size & Quantity : As per Purchase Order and Drawing.

2.0 RAW MATERIAL

Steel shall be made by one or more of the following processes: Open hearth, electric furnace or basic oxygen. Steel made by Acid Bessemer process shall not be acceptable.

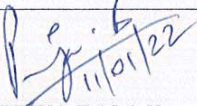
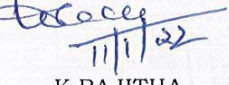
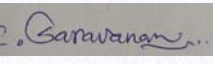
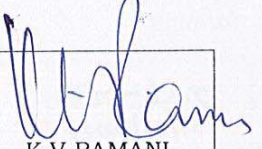
The raw material - plate used for fittings shall meet the respective specification. The test certificate shall be furnished with Traceability. (Raw material sources shall be mentioned in the MQP for review).

Carbon content shall be max 0.25%.

All Raw material / Starting material shall be fully killed and normalized.

3.0 MANUFACTURING & TESTING REQUIREMENTS

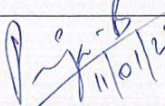
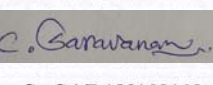
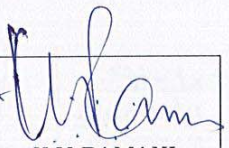
- a. Manufacturing Process: Process of Manufacture shall confirm to applicable standards. Welded fittings shall be of Two-half construction. Pipe made from plate and long seam welded shall not be used as a starting material.
- b. Fittings to be manufactured confirming to the provisions of ASME SA 234 WPB to meet the requirements of ASME Sec VIII Div 1.
- c. WPS, PQR and WPQ shall be approved by BHEL and NPCIL, prior to the start of welding.
- d. NPCIL approved brand of electrodes and NPCIL approved chemicals for Liquid Penetrant Examination shall be used. (Refer Annexure 1 & 2). Batch qualification tests of electrodes shall be done in accordance to ASME Sec II Part C.

 J. NANTHINI DM/QA&BE	 PRIYA BALAJI SDGM/PURCHASE	 K. RAJITHA AGM/MM	 C. SARAVANAN AGM/ENGG	 K V RAMANI AGM/Q&BE
PREPARED BY		REVIEWED BY		APPROVED BY

		BHARAT HEAVY ELECTRICALS LIMITED, PIPING CENTRE, CHENNAI	
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Raw material : Plate – UT#	For all thickness – SA 578, Acceptance level – B. Actual measured notch depth to be specified in the Test Certificate.
Finished Fittings :	
Heat treatment after Forming.	Shall be done as per SA 234 and follow below details for heat treatment values. Normalizing : 870 – 900 deg C Soaking time : ½ hour per inch with minimum 30 minutes.
Post Weld Heat Treatment (PWHT), if applicable.	PWHT shall be done as indicated below. If weld thickness > 19mm : 595 – 635 deg C Soaking time : 2.5 min per mm of weld thickness ; Minimum 30 minutes.
Surface NDE (for all sizes) : Spot DPT	Welds shall be Dye Penetrant Tested (root and final pass in case of 2 pass welding or on final welding in case of single pass welding) on a randomly selected spot of length of 15cm in a maximum length of 4m. The method of testing and acceptance criteria for the DPT shall be as per ASME Sec V Article 6 and Mandatory Appendix 8 of ASME Sec VIII Div 1.
Volumetric NDE (for all sizes) : RT	100% RT on welds. The method of testing and acceptance criteria for the RT shall be as per ASME Sec V Article 2 and UW-51 of ASME Sec VIII Div 1.
Hydro test	100% Fittings shall be Hydro tested. Hydro test requirements shall be as per ASME SA 234/ IS3589 /ASME Sec VIII Div 1.
NDE for Bevel Ends	100% DPT - Procedure - As per ASTM E165. No linear indications are acceptable.
Chemical , Mechanical & Hardness Test:	Test shall be as per applicable material specification. Test samples shall be tested in the Heat Treatment of fitting delivered condition. a) Tensile test : One sample of each specification, heat, heat treatment lot and size shall be subjected to Tensile test as per material specification. b) Product Analysis : One sample / heat / heat treatment lot / size. c) Hardness : Base metal hardness for WPB – 197 BHN max. Weld hardness for WPB (Weld& HAZ) : 238 BHN max.
Dimension & Surface finish	Dimensions shall be as per ASME B16.9 or as per Engineering drawing indicated in Purchase order.

#If UT is not done on the Raw material, the same shall be done by the fitting manufacturer before forming.

 J. NANTHINI DM/QA&BE	 PRIYA BALAJI SDGM/PURCHASE	 K. RAJITHA AGM/MM	 C. SARAVANAN AGM/ENGG	 K V RAMANI AGM/Q&BE
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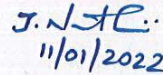
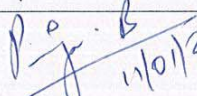
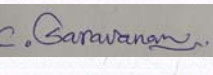
	BHARAT HEAVY ELECTRICALS LIMITED, PIPING CENTRE, CHENNAI	
TDG 7430:007	TECHNICAL DELIVERY CONDITIONS FOR WELDED CARBON STEEL FITTINGS –	DATE : 11.01.2022
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4.0 WORKMANSHIP & REPAIR

- a) All items shall have smooth workman like finish and to be free from scale & defects like laps, seams, folds, cracks, pitting etc. Surface defects if any, may be removed by grinding or skin machining only, ensuring the wall thickness, inside and outside diameter to provide workmanship like finish. Local depressions or ground spots are not acceptable. Repairs by fusion welding are prohibited.
- b) Number of weld repairs at the same spot shall be restricted to maximum two as per NPCIL approved Repair procedure. All repaired welds shall be re-examined and re-tested as per the requirements of original weld and shall meet the requirements of the same. The items shall meet the dimensional tolerance after any repair as permitted in the drawing /standard.
- c) Edge Preparation shall be as per Engineering Drawing.
Flatness on curved surfaces of fittings shall be limited to 6% of nominal OD.
Thickness: Outer Diameter & Transition: Variation shall be merged smooth to min 1:4 taper.

5.0 PRESERVATION & PACKING

- a) The external surface of fittings shall be painted as below (unless otherwise specified) :
Surface Preparation: Blast cleaning to Sa 2 ½
Primer : One coat of Red Oxide primer
Total DFT = 60-70 microns minimum.
- b) BHEL approved brands or Reputed brands of Primer shall be used, same will be subjected to NPCIL review and acceptance.
- c) The finished fittings shall be cleaned and tested as per IS-3589 – Annexure B. The finished fittings, internal, external surface and weld edge preparations shall be surface cleaned as per IS 3589 Clause B2- Pipe Preparation.
- a) The internal surface shall be protected with Desiccant material suitable of sufficient quantity, for use in combination with steel (moisture absorbent) shall be placed inside closed fitting to enable corrosion prevention for at least 2 years. (Recommended quantity of Silica gel is 250 gm/m3).
- d) Immediately after cleaning, the machined ends of fitting ends shall be well protected using end caps, so as to prevent moisture and drain water ingress into bore of the fitting and shall withstand transportation loads.
- e) Fittings shall be suitably packed in box/ crate to avoid transit and other damages.

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6.0 MARKING

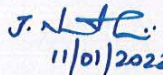
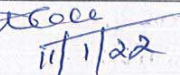
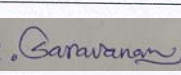
- a) The fittings despatched to BHEL stores/Project Site shall be paint stencilled & hard punched with the following details :
- 1) PO Number 2) Supplier's emblem/code 3) Size & Specification
4) Heat number 5) Running Serial number for the PO quantity 6) Inspector's seal
7) WO No, DU No 8) Weight
- b) *Any other Marking & Identification which is not mentioned above in Sl. No: 6.0 a) shall be as per Enquiry/P.O.*
- c) Paint or Ink for marking shall not contain any harmful metal or metallic salts such as zinc, lead, copper which cause corrosive attack on heating.

7.0 QUALITY PLAN & PROCEDURES

- a) The manufacturer shall submit Manufacturing Quality Plan (MQP) for BHEL and Customer - NPCIL approval. Manufacturing shall commence only after the MQP and relevant procedures approval.
- b) Heat treatment, NDT procedures and Painting procedures shall be submitted for BHEL and Customer - NPCIL review & approval.

8.0 INSPECTION & CERTIFICATION

- a) All items shall be inspected at manufacturer's works by BHEL and Customer - NPCIL as per the Approved Quality Plan.
- b) Three Original Test certificates (TC) typed in English shall be submitted along with the Inspection report. The TC shall contain the following details.
- i. BHEL P.O Number & Amendment Number(if any)
 - ii. BHEL P.O. Serial Number
 - iii. Test Certificate number
 - iv. Specification, grade with year of code, heat no, size, quantity
 - v. Staring material detail with traceability
 - vi. Heat /Melt number
 - vii. Steel making process
 - viii. Ladle Analysis of Raw material & Product Analysis of Fitting
 - ix. Heat Treatment details with actual temperature and soaking time-HT chart.
 - x. Mechanical properties.
 - xi. Hardness report.
 - xii. Hydro test report

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- xi. Hardness report.
- xii. Hydro test report
- xiii. Detailed NDT reports with reference norm, acceptance standard and Test results as applicable. Actual measured UT notch depth to be specified in the Test certificate.
- xiv. Dimensional report.
- xv. Painting details.

c) Mill test certificate for Raw material (Plate).

9.0 AUDIT CHECKS AT BHEL

BHEL reserves the right to carry out audit checks for Chemistry, HT condition, Mechanical test and NDT on fittings. Supplies found defective during check at BHEL are liable for rejection.

<i>J. N. Nanthini</i> 11/01/2022 J. NANTHINI DM/QA&BE	<i>Priya Balaji</i> 11/01/22 PRIYA BALAJI SDGM/PURCHASE	<i>K. Rajitha</i> 11/1/22 K. RAJITHA AGM/MM	<i>C. Saravanan</i> C. SARAVANAN AGM/ENGG	<i>K V Ramani</i> K V RAMANI AGM/Q&BE
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BHARAT HEAVY ELECTRICALS LIMITED,
PIPING CENTRE, CHENNAI

TDG
7430:007

TECHNICAL DELIVERY CONDITIONS FOR WELDED
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DATE :
11.01.2022

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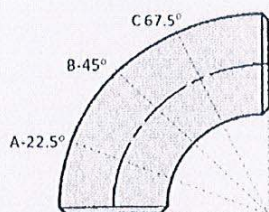
THICKNESS MEASUREMENT REPORT FOR ELBOW

PO Number:

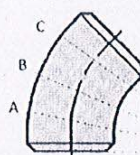
Work order/Du:

Heat no:

Size:



90° Elbow



Less than 90°

Measurement (Extrados) points

Angle	A	B	C
90	22.50°	45.00°	67.50°
60	15.00°	30.00°	45.00°
45	11.25°	22.50°	33.75°
30	NA	15.00°	NA

Description of item :
Material Spec :
Material Code :

No	Wall thickness at ends		Wall Thickness at angle			Remarks
	End 1	End 2	A	B	C	
1.						
2.						
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J. N. L. E. 11/01/2022 J. NANTHINI DM/QA&BE	Priya Balaji 11/01/22 PRIYA BALAJI SDGM/PURCHASE	K. Rajitha 11/1/22 K. RAJITHA AGM/MM	C. Saravanan C. SARAVANAN AGM/ENGG	K V Ramani K V RAMANI AGM/Q&BE
PREPARED BY		REVIEWED BY		APPROVED BY



न्यूक्लियर पावर कॉर्पोरेशन ऑफ इंडिया लिमिटेड

(भारत सरकार का उद्यम)

NUCLEAR POWER CORPORATION OF INDIA LTD.

(A Government of India Enterprise)

गुणवत्ता आश्वासन निदेशालय

Directorate of Quality Assurance

नाभिकीय ऊर्जा भवन, अणुशक्तिनगर, मुंबई-400 094

Nabhikiya Urja Bhavan, Anushaktinagar, Mumbai - 400 094.

Corporate Identification No. U40104MH1987GOI149458



आर.के. गुप्ता R.K. Gupta

अधिशायी निदेशक (गु.आ.) Executive Director (QA)

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सं. No. एनपीसीआईएल NPCIL/02500/क्यूएडी QAD/एमएम/2019/1181

दिनांक Date: December 17, 2019

विषय : वेल्डिंग कंज्यूमेबल्स के अनुमोदित ब्रांड की सूची।

Sub: List of approved brands of welding consumables

17/12/2019 की स्थिति में एनपीसीआईएल कार्यों के उपयोग हेतु वेल्डिंग कंज्यूमेबल्स के अनुमोदित ब्रांडों की सूची इसके साथ संलग्न है:

The lists of approved brands of welding consumables for use on NPCIL jobs as on 17/12/2019 are enclosed herewith.

- 1) अनुमोदित कार्बन स्टील एवं निम्न एलॉय स्टील वेल्डिंग इलेक्ट्रोड्स की सूची (2 शीट)
List of Approved Carbon Steel & Low Alloy Steel Welding Electrodes (2 Sheets).
- 2) अनुमोदित स्टेनलेस स्टील एवं अन्य निकिल एलॉय इलेक्ट्रोड्स की सूची (2 शीट)
List of Approved Stainless Steel & other Ni Alloy Electrodes (2 Sheets).
- 3) वायर के अनुमोदित ब्रांड एवं वायर फ्लक्स संयोजन की सूची (1 शीट)
List of Approved Brands of Wire and Wire Flux Combination (1 Sheet).

वेल्डिंग कंज्यूमेबल्स (क्यूएडी/प्रापण/वेल्डिंग कंज्यूमेबल्स/002 संशो.: 2) के अनुमोदन के लिए प्रक्रिया में एवं एसएमई खंड II भाग C के अद्यतन संस्करण में निर्धारित आवश्यकताओं के अनुसार अनुमोदन प्रदान किया जाता है। तथापि, विशेष मामलों में जहाँ कहीं भी बैच क्वालिफिकेशन अपेक्षित होगा, अलग से निष्पादित किया जाएगा।

The approvals are granted in conformance to the requirements stipulated in Procedure for approval of Welding Consumables (QAD/Proc/Welding Consumables/002 Rev:2) and latest edition of ASME Section II Part C. However, batch qualification wherever called for in specific cases, will have to be carried out separately.

(आर.के. गुप्ता R.K. Gupta) 17.12.19

अधिशायी निदेशक (गु.आ.) Executive Director (QA)



न्यूक्लियर पावर कॉर्पोरेशन ऑफ इंडिया लिमिटेड

(भारत सरकार का उद्यम)

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Directorate of Quality Assurance

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Nabhikiya Urja Bhavan, Anushaktinagar, Mumbai - 400 094.



1) LIST OF APPROVED CARBON STEEL & LOW ALLOY STEEL WELDING ELECTRODES

(2 pages)

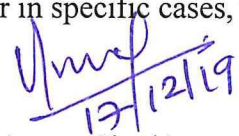
As on 17-12-2019

Sr. No.	Manufacturers	Brand name	AWS No.	Valid up to
1.	ADOR WELDING LTD., SILVASSA	SUPABASE X PLUS	E7018	FEB2024
2.	ADOR WELDING LTD., SILVASSA	MOLYTEN	E7018-A1	APR2020
3.	ADOR WELDING LTD., SILVASSA	CHROMOTEN	E8018 B2	APR2020
4.	ADOR WELDING LTD., SILVASSA	CHROMOTEN-C	E9018 B3	APR2020
5.	ADOR WELDING LTD., SILVASSA	TENALLOY Z PLUS	E7018-1	JUN2022
6.	D&H INDIA LTD., INDORE	SUPER -CR-1	E8018 B2	DEC2020
7.	D&H INDIA LTD., INDORE	SUPER -CR-2	E9018 B3	DEC2020
8.	D&H INDIA LTD., INDORE	SUPER -LH (SPL)	E7018-1 (DCEP Only)	FEB2021
9.	D&H INDIA LTD., INDORE	STANDARD	E6013	FEB2021
10.	D&H INDIA LTD., INDORE	SUPER LH	E7018 (DCEP Only)	FEB2021
11.	D&H SECHERON, INDORE	MEDIO	E6013	JUN2020
12.	D&H SECHERON, INDORE	EXOBEL	E6013	JUN2020
13.	D&H SECHERON, INDORE	SUPERTHERME	E7018	JUN2020
14.	D&H SECHERON, INDORE	MOLYTHERME	E7018-A1	JUN2022
15.	D&H SECHERON, INDORE	SUPERTHERME(SPL)	E7018-1	NOV2023
16.	HONAVAR ELECTRODES, THANE	REGULAR S	E6013	JAN2020
17.	HONAVAR ELECTRODES, THANE	ULTIMATE - 18	E7018	JAN2020
18.	HONAVAR ELECTRODES, THANE	ULTIMATE - 18 SPL	E7018-1	JAN2020
19.	MAILAM INDIA LTD., PUDUCHERRY	MAILARC -13R	E6013	SEP2020
20.	MAILAM INDIA LTD., PUDUCHERRY	MAILARC -18	E7018	SEP2020
21.	MAILAM INDIA LTD., PUDUCHERRY	MAILARC -18 PLUS	E7018-1	SEP2020
22.	MAILAM INDIA LTD., PUDUCHERRY	MAILARC -1 CR	E8018-B2	JUN2024
23.	MAILAM INDIA LTD., PUDUCHERRY	MAILARC -2 CR	E9018-B3	JUN2024
24.	RAJ KESARI ELECTRODES, UDAIPUR	SUPERLET 18	E7018	AUG2022
25.	RAJ KESARI ELECTRODES, UDAIPUR	SUPERLET 18 (SPL.)	E7018-1	AUG2022
26.	RAJ KESARI ELECTRODES, UDAIPUR	RAJCORD 13S	E6013	AUG2022
27.	RAJRATNA ELECTRODES, AHMEDABAD	RATNA 7018 SPL.	E7018-1	MAR2020
28.	RAJRATNA ELECTRODES, AHMEDABAD	RATNA 7018	E7018	NOV2023
29.	ROYAL ARC ELECTRODES LTD, VASAI	ROYAL THERM SPL.	E7018-1	SEP2021
30.	ROYAL ARC ELECTRODES LTD, VASAI	ROYAL CHROM 1	E8018-B2	FEB2023
31.	ROYAL ARC ELECTRODES LTD, VASAI	ROYAL CHROM 2	E9018-B3	FEB2023
32.	ROYAL ARC ELECTRODES LTD, VASAI	ROYAL THERM MOLY	E7018-A1	MAR2023
33.	ROYAL ARC ELECTRODES LTD, VASAI	ROYAL THERM	E7018	DEC2023
34.	ROYAL ARC ELECTRODES LTD, VASAI	ROYAL S	E6013	DEC2023
35.	SUPERON SCHWEISSTECHNIK INDIA LTD. DELHI	GARANT MO	E7018-A1	SEP2020
36.	SUPERON SCHWEISSTECHNIK INDIA LTD., DELHI	SUPER CROMO 1B	E8018-B2	DEC2020

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Sr. No.	Manufacturers	Brand name	AWS No.	Valid up to
37.	SUPERON SCHWEISSTECHNIK INDIA LTD., DELHI	SUPER CROMO 2B	E9018-B3	DEC2020
38.	VIJEY ELECTRODES & WIRES PVT. LTD., CHENNAI	VJ 6013 X	E6013	SEP2020
39.	VIJEY ELECTRODES & WIRES PVT. LTD., CHENNAI	VJ 7018	E7018	SEP2020
40.	VIJEY ELECTRODES & WIRES PVT. LTD., CHENNAI	VJ 7018 - 1	E7018-1	SEP2020
41.	WELD FAST ELECTRODES, NAGPUR	WELDFAST LH 18	E-7018	MAR2020
42.	WELD FAST ELECTRODES, NAGPUR	WELDFAST LH-18-1	E-7018-1	MAR2020
43.	WELD FAST ELECTRODES, NAGPUR	WELDFAST CROMO 0500	E7018-A1	FEB2023
44.	WELD FAST ELECTRODES, NAGPUR	WELDFAST CROMO 1500	E8018-B2	FEB2023
45.	WELD FAST ELECTRODES, NAGPUR	WELDFAST CROMO 2251	E9018-B3	FEB2023

The approvals are granted in conformance to the requirements stipulated in latest edition of ASME Section II Part C. However, batch qualification wherever called for in specific cases, will have to be carried out separately.


(Anoop Singh)
ACE & Head QA (M-6)

Through: Shri A.K. Singh, AD (QA- Opns. & Group-1)

Executive Director (QA)


17.12.19

न्यूक्लियर पावर कॉर्पोरेशन ऑफ इंडिया लिमिटेड

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Nabhikiya Urja Bhavan, Anushaktinagar, Mumbai - 400 094.



2) LIST OF APPROVED STAINLESS STEEL & OTHER NI ALLOY ELECTRODES

(2 Pages)

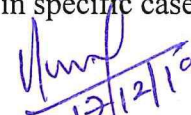
As on 17-12-2019

Sr. No.	MANUFACTURERS	BRAND NAME	AWS No.	VALID UPTO
1.	ADOR WELDING LTD., SILVASSA	BETANOX-DL	E 309L-16	SEP2020
2.	ADOR WELDING LTD., SILVASSA	SUPERINOX-2C	E 316L-16	SEP2020
3.	ADOR WELDING LTD., SILVASSA	SUPERINOX-1C	E 308L-16	SEP2020
4.	D&H INDIA LTD., INDORE	SV-308L	E 308L-15	DEC2022
5.	D&H INDIA LTD., INDORE	SV-309L	E 309L-15	DEC2022
6.	D&H INDIA LTD., INDORE	CROMALLOY-B	E 308L-16	DEC2022
7.	D&H INDIA LTD., INDORE	CROMALLOY 309L	E 309L-16	DEC2020
8.	ADOR FONTECH, BENGALURU	LH 511	E Ni Cu7	OCT2020
9.	ADOR FONTECH, BENGALURU	LH 521	E Ni Cr Fe 3	OCT2020
10.	D&H SECHERON, INDORE	CRONITHERME 25/12	E 309-16	JUN2022
11.	D&H SECHERON, INDORE	RUTOX-D	E 316L-16	JUN2022
12.	D&H SECHERON, INDORE	BATOX-B	E 308L-15	JUN2020
13.	D&H SECHERON, INDORE	RUTOX-B	E 308L-16	JUN2020
14.	D&H SECHERON, INDORE	D&H 309L	E 309L-16	NOV2023
15.	D&H SECHERON, INDORE	D&H 1250	E NiCu-7	JAN2021
16.	D&H SECHERON, INDORE	D&H 1212NS	E NiCr Fe-3	JAN2021
17.	D&H SECHERON, INDORE	RUTOX-A	E 308-16	NOV2023
18.	D&H SECHERON, INDORE	RUTOX-A St	E 347-16	NOV2023
19.	D&H SECHERON, INDORE	RUTOX-Mo	E 316-16	NOV2023
20.	HONAVAR ELECTRODES, THANE	SILVER SHINE 308L-15	E 308L-15	FEB2024
21.	HONAVAR ELECTRODES, THANE	SILVER SHINE 316L	E 316L-16	FEB2024
22.	RAJRATNA ELECTRODES, AHMEDABAD	RATNA 308L	E 308L-16	MAR2020
23.	RAJRATNA ELECTRODES, AHMEDABAD	RATNA 316 L	E 316L-16	MAR2020
24.	MAILAM INDIA LTD., PUDUCHERRY	MAILEX-A	E 308-16	JUN2024
25.	MAILAM INDIA LTD., PUDUCHERRY	MAILEX-AL	E 308L-16	JUN2024
26.	MAILAM INDIA LTD., PUDUCHERRY	MAILEX-AL-15	E 308L-15	JUN2024
27.	MAILAM INDIA LTD., PUDUCHERRY	MAILEX-25/12	E 309-16	JUN2024
28.	MAILAM INDIA LTD., PUDUCHERRY	MAILEX-25/12-L	E 309L-16	JUN2024
29.	MAILAM INDIA LTD., PUDUCHERRY	MAILEX-25/12-Mo	E 309 Mo-16	JUN2024
30.	MAILAM INDIA LTD., PUDUCHERRY	MAILEX Mo	E 316-16	JUN2024
31.	MAILAM INDIA LTD., PUDUCHERRY	MAILEX MoL	E 316L-16	JUN2024
32.	ROYAL ARC ELECTRODES, VASAI,	ROYAL 1C	E 308L-16	OCT2024
33.	ROYAL ARC ELECTRODES, VASAI,	ROYAL 2C	E 316L-16	OCT2024

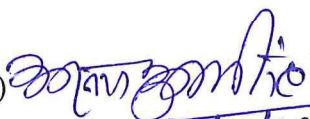
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Sr. No.	MANUFACTURERS	BRAND NAME	AWS No.	VALID UPTO
34.	ROYAL ARC ELECTRODES, VASAI,	ROYAL-D2L	E 309L-16	OCT2024
35.	WELD FAST ELECTRODES, NAGPUR	WELDFAST 308L	E 308L-16	JAN2021
36.	WELD FAST ELECTRODES, NAGPUR	WELDFAST 316L	E 316L-16	JAN2021
37.	WELD FAST ELECTRODES, NAGPUR	WELDFAST 309L	E 309L-16	JAN2021
38.	WELD FAST ELECTRODES, NAGPUR	WELDFAST 309MoL	E 309LMo-16	JAN2021

The approvals are granted in conformance to the requirements stipulated in latest edition of ASME Section II Part C. However, batch qualification wherever called for in specific cases, will have to be carried out separately.

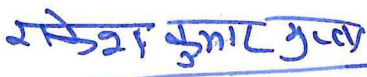

 (Anoop Singh)
 ACE & Head QA (M-6)

Through: Shri A.K. Singh, AD (QA- Opns. & Group-1)


 17/12/19


 17/12/19

Executive Director (QA)


 17-12-19



न्यूक्लियर पावर कॉर्पोरेशन ऑफ इंडिया लिमिटेड

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3) LIST OF APPROVED BRANDS OF WIRE AND WIRE FLUX COMBINATION

(1 Page)

As on 17-12-2019

Sr. No.	MANUFACTURERS	BRAND NAME	AWS No.	VALID UPTO
1.	ADOR FONTECH, BENGALURU	TIG 120	ER 308L	OCT2024
2.	ADOR FONTECH, BENGALURU	TIG 121	ER 316L	OCT2024
3.	ADOR FONTECH, BENGALURU	TIG 123	ER 309L	OCT2024
4.	ADOR FONTECH, BENGALURU	TIG 120S	ER 347	OCT2024
5.	ADOR FONTECH, BENGALURU	TIG 521	ER NiCr3	OCT2024
6.	ADOR WELDING LTD., SILVASSA	TIGFIL 70S-2	ER 70S-2	FEB2022
7.	ADOR WELDING LTD., SILVASSA	TIGINOX-308L	ER 308L	SEP2020
8.	ADOR WELDING LTD., SILVASSA	TIGINOX-309L	ER309L	SEP2020
9.	ADOR WELDING LTD., SILVASSA	AUTOMIG 70-S6	ER 70S-6	DEC2023
10.	ADOR WELDING LTD., SILVASSA	AUTOMELT-B71 AUTOMELT-EH 14 WIRE	F7A2-EH14	FEB2024
11.	D&H INDIA LTD., INDORE	SUPER TIG 308L	ER 308L	DEC2020
12.	D&H INDIA LTD., INDORE	SUPER TIG 309L	ER 309L	DEC2020
13.	D&H SECHERON, INDORE	FILLER WIRE FW 308L	ER 308L	FEB2021
14.	D&H SECHERON, INDORE	FILLER WIRE FW 309L	ER 309L	FEB2021
15.	D&H SECHERON, INDORE	F 70 S2	ER 70S-2	JUN2022
16.	RAJRATNA ELECTRODES, AHMEDABAD	RAAJTIG ER 308L	ER 308L	MAR2020
17.	RAJRATNA ELECTRODES, AHMEDABAD	RAAJTIG ER 316L	ER 316L	MAR2020
18.	VENUS WIRES, KHOPOLI	VENUS 308L	ER 308L	SEP2021
19.	VENUS WIRES, KHOPOLI	VENUS 316L	ER 309L	SEP2021
20.	VENUS WIRES, KHOPOLI	VENUS 309L	ER 316L	SEP2021
21.	VENUS WIRES, KHOPOLI	VENUS 347	ER 347	SEP2021
22.	WELD FAST ELECTRODES, NAGPUR	TIG FAST-3	ER 70S-2	JAN2021
23.	WELD FAST ELECTRODES, NAGPUR	MIG FAST-1	ER 70S-6	JAN2021

The approvals are granted in conformance to the requirements stipulated in latest edition of ASME Section II Part C. However, batch qualification wherever called for in specific cases, will have to be carried out separately.

(Anoop Singh)
ACE & Head QA (M-6)

Through: Shri A.K. Singh, AD (QA- Opns. & Group-1)

Executive Director (QA)

रविशंकर गुजाल 13-12-19

कमलेश्वर गुजाल 17/12/19

श्रीराम 17/12/19



न्यूक्लियर पावर कॉर्पोरेशन ऑफ इंडिया लिमिटेड

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Nabhikiya Urja Bhavan, Anushaktinagar, Mumbai - 400 094.

Corporate Identification No. U40104MH1987GOI149458



आर.के. गुप्ता R.K. Gupta

अधिशाली निदेशक (गु.आ.) Executive Director (QA)

Phone: 022- 25995030/25558487

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e-mail: rk_gupta@npcil.co.in

सं. No. एनपीसीआईएलNPCIL/02500/क्यूएडीQAD/ईडीED(क्यूएQA)/एमएम/2019/1160

December 17, 2019

विषय : वेधी पदार्थों के अनुमोदित ब्रांड की सूची।

Sub: List of approved brands of penetrant materials

17-12-2019 की स्थिति में एनपीसीआईएल के उपयोग हेतु वेधी पदार्थों के अनुमोदित ब्रांड की सूची इसके साथ संलग्न है। यह अनुमोदन हमारी प्रक्रिया संख्या QAD/NDT-PROC-PT-05 (तरल वेधी परीक्षण के लिए उपयोग में आने वाले रसायन परिवार के अनुमोदन हेतु प्रक्रिया) के अनुसार आवश्यकताओं के अनुरूप प्रदान किया जाता है।

The list of approved brands of penetrant materials for use on NPCIL jobs as on 17-12-2019 is enclosed herewith. The approvals are granted in conformance to the requirements as per our procedure no. QAD/NDT-PROC-PT-05 (Procedure for approval of Family of Chemicals used for Liquid Penetrant Examination).


(आर.के. गुप्ता R. K. Gupta)

अधिशाली निदेशक (गु.आ.) Executive Director (QA)



न्यूक्लियर पावर कॉर्पोरेशन ऑफ इंडिया लिमिटेड

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LIST OF APPROVED PENETRANT TESTING MATERIAL

(As on 17-12-2019)

Sr. No.	Manufacturers	Brand name	Description	Valid up to
1.	DYEGLO PVT. LTD, PUNE	RP-81	Red Coloured Solvent Removable Penetrant	DEC2023
2.	DYEGLO PVT. LTD, PUNE	RP-90	Red Coloured Water Washable Penetrant	DEC2023
3.	DYEGLO PVT. LTD, PUNE	CL-01	Solvent Cleaner	DEC2023
4.	DYEGLO PVT. LTD, PUNE	RD-01	Solvent Base Developer suitable for RP-81 & RP-90	DEC2023
5.	DYEGLO PVT. LTD, PUNE	FP-01	Fluorescent Solvent Removable Penetrant	DEC2023
6.	DYEGLO PVT. LTD, PUNE	WD-01	Solvent Base Developer suitable for FP-01.	DEC2023
7.	FERROCHEM NDT SYSTEM PVT. LTD. PUNE	FC-911, FC-811 FC-711	Solvent Removable (Visible)	FEB2022
8.	FERROCHEM NDT SYSTEM PVT. LTD. PUNE	FC-931, FC-811	Water Washable (Visible)	FEB2022
9.	FERROCHEM NDT SYSTEM PVT. LTD. PUNE	FC-941, FC-821	Water washable (Fluorescent)	FEB2022
10.	FERROCHEM NDT SYSTEM PVT. LTD. PUNE	FC-921, FC-821, FC-721	Solvent removable (Fluorescent)	FEB2022
11.	MAGNAFLUX ITW INDIA PVT.LTD.SECUNDERABAD	SKL-SP 1	Red Coloured Solvent Removable Penetrant	JUL2024
12.	MAGNAFLUX ITW INDIA PVT.LTD.SECUNDERABAD	SKC-1	Solvent Cleaner	JUL2024
13.	MAGNAFLUX ITW INDIA PVT.LTD.SECUNDERABAD	SKD-S2	Solvent Base Developer	JUL2024
14.	MAGNAFLUX ITW INDIA PVT.LTD.SECUNDERABAD	SKL-WP2	Red Coloured Water Washable Penetrant	JUL2024
15.	MAGNAFLUX ITW INDIA PVT.LTD.SECUNDERABAD	SKL-SP2	Red Coloured Solvent Removable Penetrant.	JUL2024
16.	MR CHEMIE INDIA PVT. LTD., HYDERABAD.	MR ^(R) 62	Solvent Removable Penetrant-Red	JAN2021
17.	MR CHEMIE INDIA PVT. LTD., HYDERABAD.	MR ^(R) 68 NF	Solvent Removable and Water Washable Penetrant-Red	JAN2021
18.	MR CHEMIE INDIA PVT. LTD., HYDERABAD.	MR ^(R) 67	Solvent Removable and Water Washable Penetrant-Red	JAN2021
19.	MR CHEMIE INDIA PVT. LTD., HYDERABAD.	MR ^(R) 672 F	Solvent Removable and Water Washable Penetrant-Fluorescent	JAN2021
20.	MR CHEMIE INDIA PVT. LTD., HYDERABAD.	MR ^(R) 85	Solvent Remover suitable for MR ^(R) 68NF, MR ^(R) 67, MR ^(R) 672F and MR ^(R) 62.	JAN2021
21.	MR CHEMIE INDIA PVT. LTD., HYDERABAD.	MR ^(R) 70	Non-Aqueous Developer suitable for MR ^(R) 68 NF, MR ^(R) 67 and MR ^(R) 672F	JAN2021

Sr. No.	Manufacturers	Brand name	Description	Valid up to
22.	MR CHEMIE INDIA PVT. LTD., HYDERABAD.	MR ^(R) 70 I	Non-Aqueous Developer suitable for MR ^(R) 62.	JAN2021
23.	P-MET HIGH TECH CO. PVT. LTD., VADODARA	PP-15/PP-15B	Red Coloured Solvent Removable Penetrant	SEPT2021
24.	P-MET HIGH TECH CO. PVT. LTD., VADODARA	PP-19/PP-19B	Red Coloured Water Washable Penetrant	SEPT2021
25.	P-MET HIGH TECH CO. PVT. LTD., VADODARA	PC-21/PC-21B	Solvent Cleaner	SEPT2021
26.	P-MET HIGH TECH CO. PVT. LTD., VADODARA	PD-31/PD-31B	Solvent Base Developer	SEPT2021
27.	P-MET HIGH TECH CO. PVT. LTD., VADODARA	PP-110/ PP110B	Red Coloured Solvent Removable Penetrant	SEPT2021
28.	P-MET HIGH TECH CO. PVT. LTD., VADODARA	PC 120/ PC-120B	Solvent Cleaner	SEPT2021
29.	P-MET HIGH TECH CO. PVT. LTD., VADODARA	PD 130 /PD-130B	Solvent Base Developer	SEPT2021
30.	P-MET HIGH TECH CO. PVT. LTD., VADODARA	FPS46/FPS46B	Solvent Removable Fluorescent Penetrant	SEPT2021
31.	P-MET HIGH TECH CO. PVT. LTD., VADODARA	FPS49/FPS49B	Water Washable Fluorescent Penetrant	SEPT2021
32.	PRADEEP METAL TREATMENT CHEMICALS PVT. LTD., THANE	Flaw Guide Penetrant (NP Grade)	Red Coloured Solvent Removable Penetrant.	OCT2024
33.	PRADEEP METAL TREATMENT CHEMICALS PVT. LTD., THANE	Flaw Guide Cleaner (NP Grade)	Solvent Cleaner	OCT2024
34.	PRADEEP METAL TREATMENT CHEMICALS PVT. LTD., THANE	Flaw Guide Developer (NP Grade)	Solvent Base Developer	OCT2024
35.	PRADEEP METAL TREATMENT CHEMICALS PVT. LTD., THANE	Flaw Guide Red Dye Penetrant-W	Water Washable Dye Penetrant	OCT2024

Note:-

1. Halogen content in Penetrant, Cleaner and Developer is 25ppm (max) and Sulphur content is 500ppm (max). However when using penetrant materials for Austenitic Stainless Steel, Titanium, Nickel base or other high temperature alloys, Halogen and Sulphur content shall not exceed 25ppm. Manufacture has to mention for each batch, the Sulphur and Halogen content in the label of each container for selection of Penetrant materials for the stated application.
2. Developer is to be used in Aerosol can to get the best results.

(Signature)
17/12/19

(Anoop Singh)
ACE & Head QA (M-6)

Through: Shri A.K. Singh, AD (QA- Opns. & Group-1)

(Signature)
17/12/19

(Signature)
17/12/19

Executive Director (QA)

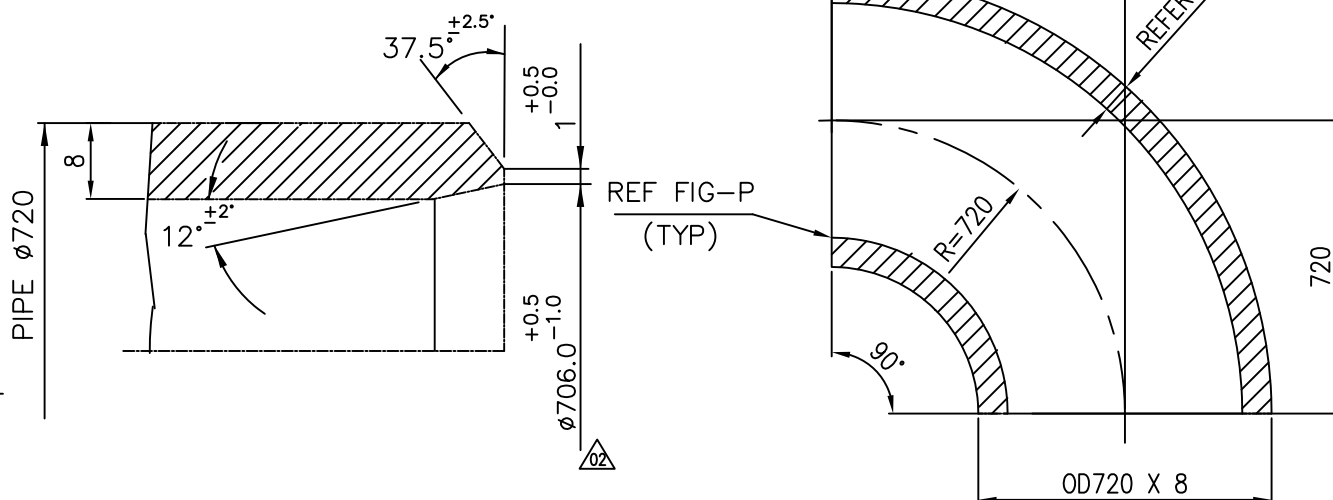
(Signature)
17.12.19

ALL DIMENSIONS ARE IN MM

REV 01	DATE 13.01.21	ALTERED : R.BHARATH CHD & APPD : IDB RAJU	REV 02	DATE 23.09.21	ALTERED : R.BHARATH CHD & APPD : IDB RAJU
WORK ORDER DETAILS INCLUDED IN TITLE BLOCK. REVISIONS MARKED AS Δ 01			D1 VALUE ALTERED. NOTE NO-07 ALTERED AS MARKED. REVISIONS MARKED AS Δ 02		

NOTES:

- 1) ALL DIMENSIONS ARE FINISHED DIMENSIONS.
- 2) CONNECTING PIPE SIZE IS OD720X8.
- 3) MATERIAL SPECIFICATION SHALL BE SA234WPB(W).
- 4) THIS WELDED FITTING CONSTRUCTION SHALL BE AS PER SA234.
- 5) MINIMUM WALL THICKNESS SHALL NOT BE LESS THAN 0.875 TIMES THE NOMINAL WALL THICKNESS SHOWN IN DRG.
- 6) DESIGN, MANUFACTURING, AND OTHER TOLERANCES SHALL BE AS PER ASME B16.9 & SA234.
- 7) FOR SHOP PAINTING/COATING/GRIT BLASTING DETAILS REFER NPCIL APPROVED BHEL QUALITY PLAN
- 8) SUITABLE CAPS SHALL BE PROVIDED TO PROTECT BEVEL ENDS.

FIG-P

—	BW 90 DEGREE ELBOW OD720 X 8	—	SA 234 WPB(W)	C	158	000
VAR No.	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT	QUANTITY
			MATERIAL SPECN			

CUSTOMER : NUCLEAR POWER CORPORATION OF INDIA LIMITED**NAME OF THE PROJECT : KUDANKULAM NUCLEAR POWER PROJECT
2 X 1000MWe (UNIT-03 & 04)** Δ WO No: 400 442 DATED 05.08.2019
BHARAT HEAVY ELECTRICALS LIMITED
 PIPING CENTRE
 CHENNAI 600 017

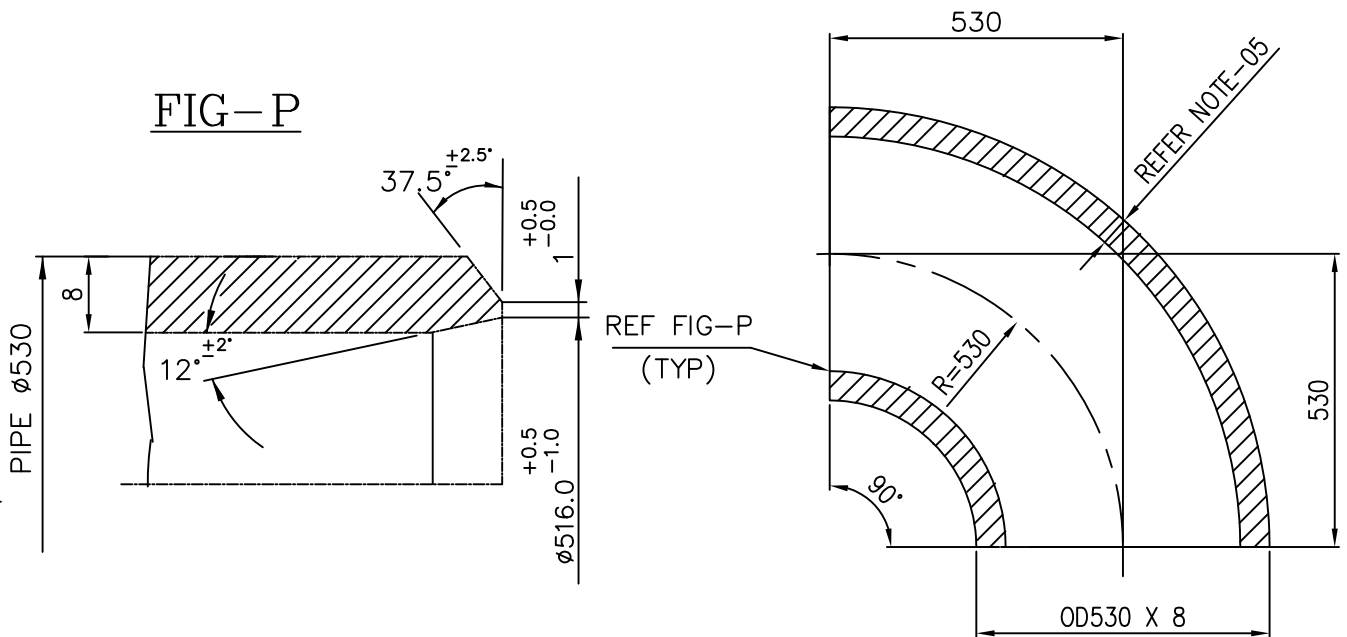
	NAME	SIGNATURE	DATE
DRN	B.B.GHADAI		12.08.2020
CHD	R.BHARATH		12.08.2020
APPD	S.TRINADHA		12.08.2020

DEPT —	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE N.T.S	WEIGHT (Kg) 158.000	REFERENCE CUSTOMER DRAWING PGB SYSTEM 30PGB01,30PGB10,40PGB01,40PGB10
CODE —					
TITLE BW 90 DEGREE ELBOW(WELDED) OD720 X 8					DRAWING NO : 4—NO—473—00035
					REV 02

REV 01	DATE 13.01.21	ALTERED :R.BHARATH CHD & APPD : IDB RAJU	REV 02	DATE 23.09.21	ALTERED :R.BHARATH CHD & APPD : IDB RAJU
WORK ORDER DETAILS INCLUDED IN TITLE BLOCK. REVISIONS MARKED AS <u>01</u>			D1 VALUE ALTERED. NOTE NO-07 ALTERED AS MARKED. REVISIONS MARKED AS <u>02</u>		

NOTES:

- 1) ALL DIMENSIONS ARE FINISHED DIMENSIONS.
- 2) CONNECTING PIPE SIZE IS OD530X8.
- 3) MATERIAL SPECIFICATION SHALL BE SA234WPB(W).
- 4) THIS WELDED FITTING CONSTRUCTION SHALL BE AS PER SA234.
- 5) MINIMUM WALL THICKNESS SHALL NOT BE LESS THAN 0.875 TIMES THE NOMINAL WALL THICKNESS SHOWN IN DRG.
- 6) DESIGN, MANUFACTURING, AND OTHER TOLERANCES SHALL BE AS PER ASME B16.9 & SA234.
- 7) FOR SHOP PAINTING/COATING/GRIT BLASTING DETAILS REFER NPCIL APPROVED 02 BHEL QUALITY PLAN
- 8) SUITABLE CAPS SHALL BE PROVIDED TO PROTECT BEVEL ENDS.

FIG-P

—	BW 90 DEGREE ELBOW OD530 X 8	—	SA 234 WPB(W)	C	85	500
VAR No.	DESCRIPTION	STD	MATERIAL CODE	A/C/P	UNIT	QUANTITY
			MATERIAL SPECN			

CUSTOMER : NUCLEAR POWER CORPORATION OF INDIA LIMITED**NAME OF THE PROJECT : KUDANKULAM NUCLEAR POWER PROJECT
2 X 1000MWe (UNIT-03 & 04)**01 WO No: 400 442 DATED 05.08.2019
BHARAT HEAVY ELECTRICALS LIMITED
 PIPING CENTRE
 CHENNAI 600 017

	NAME	SIGNATURE	DATE
DRN	B.B.GHADAI		12.08.2020
CHD	R.BHARATH		12.08.2020
APPD	S.TRINADHA		12.08.2020

DEPT —	ALL DIMENSIONS ARE IN MM	PROJECTION 	SCALE N.T.S	WEIGHT (Kg) 85.500	REFERENCE CUSTOMER DRAWING PGB SYSTEM 30PGB80,30PGB84,40PGB80,40PGB84
CODE —					
TITLE BW 90 DEGREE ELBOW(WELDED) OD530 X 8					DRAWING NO : 4—NO—473—00036 REV 02

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PACKAGING INSTRUCTIONS FOR PIPING COMPONENTS

PC: PKG: 01

Revision summary

Rev No	Revision Details	Issued on
00	Fresh issue	28-05-2014

Prepared by	Reviewed & Approved by
	
S.ARUN KUMAR	K.VEDAPRASAD

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1. Scope
2. Packaging
3. Criteria for Selection of Packaging
4. Types of packaging
5. Sling protections
6. Marking and Labelling
7. Packing list
8. General Instructions for packaging
9. Reference drawings
10. Cautionary symbols
11. Packing reference table
12. Check list

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1. SCOPE

This procedure elicits the general requirements to be complied with for packaging of piping components. The packaging is intended to preserve and protect the contents.

The handling, storage, cleaning, packaging, and preservation of items shall be controlled to prevent damage or loss and to minimize deterioration.

2. PACKAGING

This procedure contains requirements for packaging of items for protection against corrosion, contamination, physical damage, or any effect that would lower the quality or cause the components to deteriorate during the time they are shipped and stored at sites.

Items shall be inspected for cleanliness immediately before packaging. Dirt, oil, residue, metal chips or other forms of contamination shall be removed.

Adequate protection shall be provided against mechanical damage and atmospheric corrosion in transit and, for equipment suitable for outside storage, for prolonged storage at the site prior to installation.

Water proof barrier material – high density polythene shall be used as a resistant to grease and water; it shall protect items from airborne and windblown soils.

Desiccants like silica gel to be used inside pipe components. Silica gel shall conform to IS 3401. The gel is to be packed in sachets placed at different positions inside the components for absorbing moisture. The quantity of silica gel shall be adequate for storage period of one year.

Components to be placed in such a way that metal to metal contact is avoided.

For mechanical components, (1) all openings shall be covered or plugged with substantial (1/2 inch minimum thick) one piece plywood or metal closures, securely fastened and suitable for prolonged exposure prior to final installation; (2) all tapped openings in equipment shall be plugged with plastic plugs to protect internal threads; and (3) all welding end connections shall be provided with adequate weld bevel protectors to protect from corrosion and physical damage.

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Austenitic stainless steel and nickel-based alloy materials shall be handled in such a manner that they are not in direct contact with carbon steel materials or with materials containing halogen, sulphur, zinc and lead.

Each components/item of stainless steel materials should be wrapped with high density polythene.

All equipment shall be packed, securely anchored (skid mounted when required) and weather protected for the shipment method adopted.

Temporary bracing or supports, marked and tagged for removal after equipment installation, shall be provided to prevent damage during shipment and shall be painted bright, fluorescent yellow.

3. Criteria for Selection of Packaging:

Packages are to be made according to categories listed in Table-6 (see page – 24), depending on the type of materials and size.

4. TYPES OF PACKAGING:

4.1 CRATES

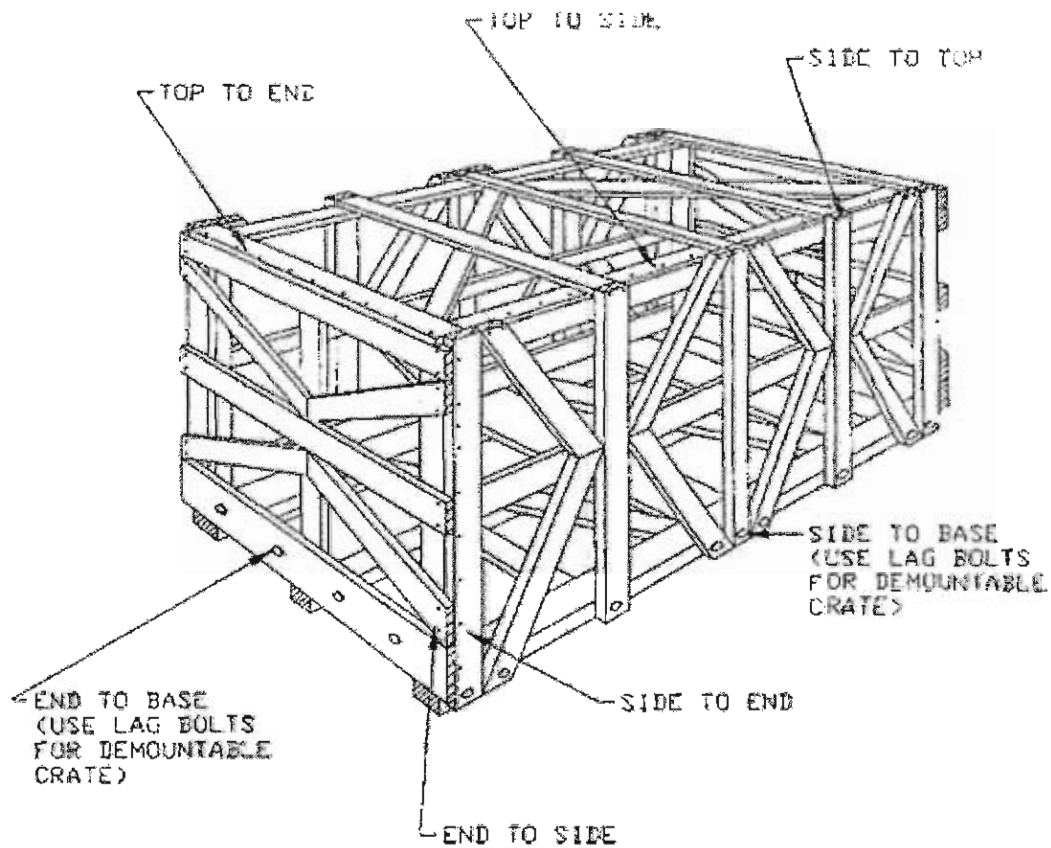
- These are to be made of seasoned wood and are intended for packaging heavy materials Viz., straight pipes and pipes with attachments.
- The crates are to be lined with hi-density polythene, to prevent entry of moisture.
- The dimensions of the crates are to be restricted to 20 x5x5 feet.
- Pipes up to OD 350mm are to be crated.
- Pipes are to be stacked inside the crate so that the weight of the pipe does not rest on branch stubs or carrier plates.
- Contents of the crate should not come in contact with each other or with the crating, and should be adequately cushioned to preserve the painting.
- The gross weight of the crate should not exceed 2 Tons.
- For further instructions refer ASTM D6039 Standard Specification for Open and Covered wood Crates.

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WOODEN CRATE



Max Net Load (KGS)	Length (mm)	Width (mm)	Height (mm)
2000	6096	1524	1524

All the dimensions shown in the above table are maximum inside dimensions.

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4.3 SADDLES

- Saddles are defined as profiled supports made of wood, and are used to cradle and support Tanks, pipe bends and pressure vessels.
- Ensure that the end chamfering of the bends are duly protected for the transit.
- Tanks are to be completely drained and dried.
- Adequate amount of the specified desiccant is to be placed inside the tank/ vessel.
- Ensure that all openings are covered and /or plugged.

4.4 CASES

- Other components such as fittings and Mitres are to be packed inside wooden cases.
- The insides of the cases are to be lined with hi-density polythene.
- Air vents to be provided in the cases for ventilation.
- Components to be placed in such a way that metal to metal contact is avoided.
- Small components like Fasteners, gaskets are to be packed in high density polythene covers and placed inside the wooden cases.
- Holes to be provided in the case floor to act as drains.

4.5 BUNDLES

- Bundles are transportable units where a large number of straight pipes of the same diameter and even lengths are arranged securely and are fit to be lifted by cranes and also stacked.
- Pipe ends should be covered fully with plastic end caps.
- Pipes can be bundled only when they can bear the stack compression load without additional support.
- Clamps made of wood or steel clamps with wooden inserts are to be used.
- Clamps must be locked firmly so that the pipes cannot slide out of bundle.
- Bundle must be held together by at least three sets of clamps as indicated in the diagram.

**Packaging Instructions for Piping
Components**

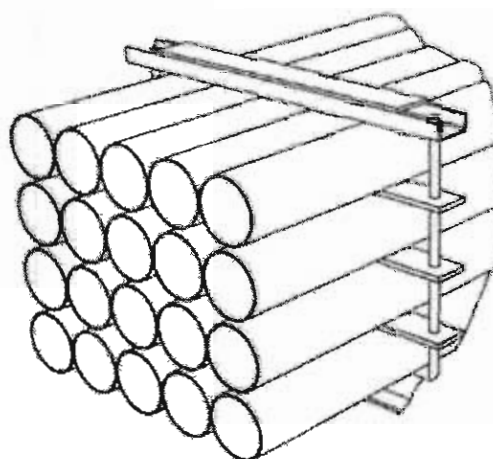
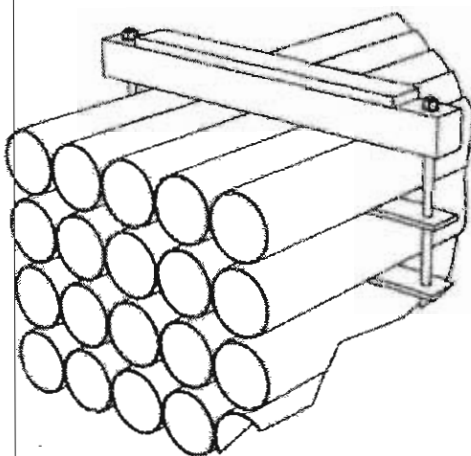
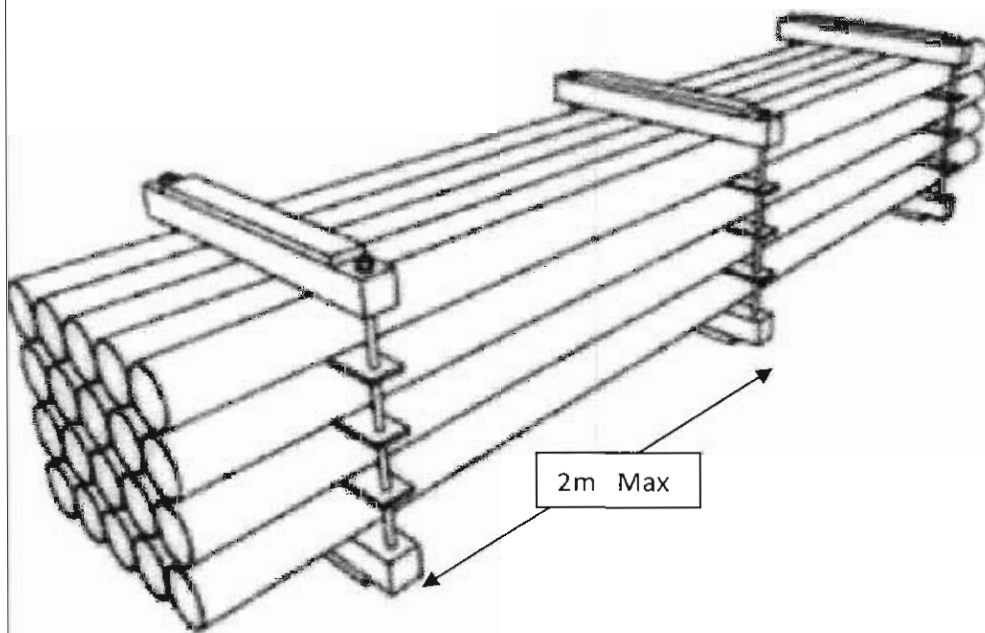
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5. SLING PROTECTIONS

The lifting points of the case or crate or bundle must be equipped with sling protections suitable to the respective package gross weight.

6. MARKING AND LABELLING

Components and their containers shall be identified by marking. Shipping marks shall be on all sides of package. The shipping marks shall be at least 3 inches high where space permits. Markings are to be in black paint or ink depending on shade of the package surface.

Cautionary symbols to be stencilled in red waterproof paint or ink.

7. PACKING LIST

One complete packing list inside a watertight envelope must be affixed outside of each package and be covered by sheet metal. One more copy of the packing slip wrapped in polyethylene bag is to be kept inside the box at the pertinent place.

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8. General Instructions for packaging

- The quantity of Slides / Runners is selected depending upon the weight and over-all dimension of the Load, to be carried. Table-1 and 2 details out the number of Slides, length and cross sections of the Slides to be provided with their carrying capacity.
- The construction of bottom frame is as shown in the Figure-2.
- The construction of the top frame is, as shown in the figure -3.
- Thickness of the boards, used for sheathing for the top, sides and end panels, shall be 25 mm.
- The top of the Box consist of Beam supported on top traverse bar and sheathing, as shown in the figure- 3.
- The dimension of items 1, 2 f figure -3 shall be as table -3.
- Diagonal braces shall be used in packing cases with height, exceeding 600 mm as shown in the figure- 4.
- The angle between the lower (or) upper horizontal supports and diagonal braces, shall be in the range of 20° to 60° and if possible, this angle preferably be kept at 45°.
- If the height of the box exceeds more than 1400 mm the diagonal braces, shall cross each other and when this dimension exceeds 1800mm additional horizontal supports shall be provided as shown in figure-5 and figure- 6.
- Size of upper and lower horizontal supports and vertical supports, shall be as per Table 4 refer figure 7, 8, 9 & 10 for the arrangement.
- The cross section of end traverses bar (item -1) and thickness of bottom boards (item-2), shall be used as per table -5.
- All boxes measuring more than 600 mm height shall be constructed by assembling end, side and top shook's on a bottom, forming a complete enclosed Box (refer figure-11).
- Angle iron cleats shall be used for strengthening the joints, as indicated in figure -12.
- Boxes will be strengthened by steel bands to withstand transit damages.

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9. Reference drawings

1. SLIDE
2. LONGITUDINAL UNDER
SLIDE BOARD.
3. BOTTOM BOARD
4. CARRIER TRAVERSE BAR
5. INTERMEDIATE VERTICAL SUPPO
6. HORIZONTAL BRACING
7. DRAINAGE HOLES
8. BATTEN
9. SLING PLATE
10. NUT BOLT WASHER
11. END TRAVERSE BAR
12. WATER PROOF LINING OF
BITUMANISED PAPER
13. VERTICAL SUPPORTS
14. END SHEETING BOARD
15. SIDE SHEATING BOARD
16. TOP SHEATING BOARD
17. LONGITUDINAL SUPPORT
18. TOP HORIZONTAL BEAM
19. TOP SHEATING BOARD
20. TOP CORNER STRIPS
(FOR STRENGTHENING)
21. OUT SIDE DOCUMENTS
CONTAINER.

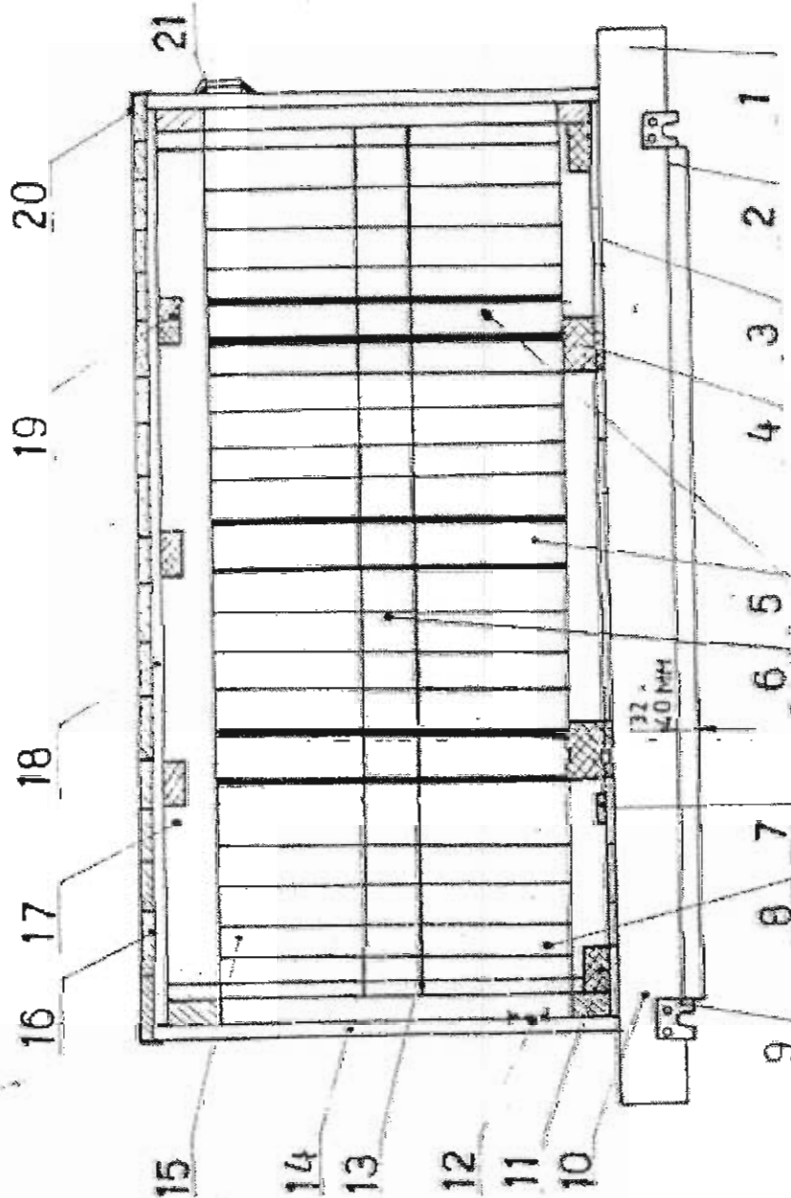


Fig. 1

NOMENCLATURE OF PARTS OF PACKING

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**BOTTOM FRAME ARRANGEMENTS FOR TYPES
633, 654, 966, 1296, 1122, 1144, 1399, 1577**

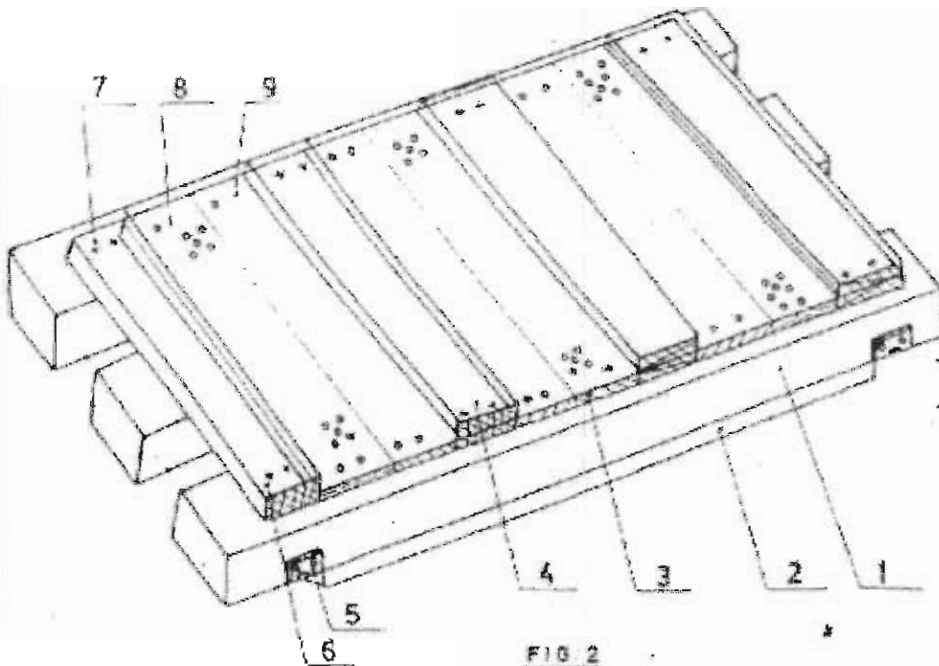


FIG. 2

- 1. SLIDE
- 2. UNDER SLIDE BOARD
- 3. BOTTOM BOARD
- 4. CARRIER TRAVERSE BAR
- 5. SLING PLATE
- 6. TRAVERSE BAR
- 7. BOLT, NUT & WASHER
- 8. DRAINAGE HOLES
- 9. NAILS

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TOP FRAME ARRANGEMENT FOR TYPES
633, 654, 966, 1296, 1122, 1144, 1399 & 1577

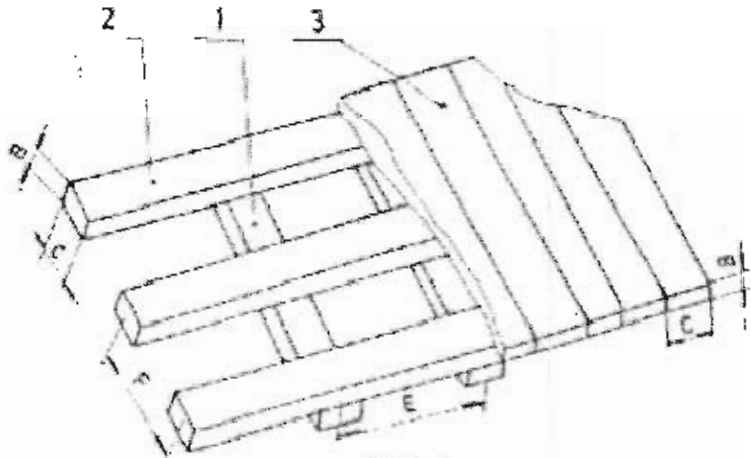


FIG-3

- 1 - Traverse Bars
- 2 - Horizontal Scans
- 3 - Top Board

PROVISION OF DIAGONAL BRACING ARRANGEMENT

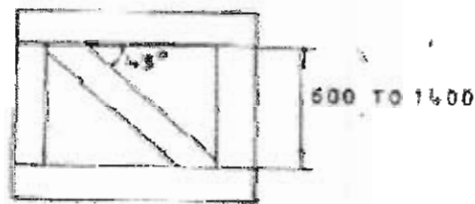


FIG-4

**Packaging Instructions for Piping
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ARRANGEMENT OF DIAGONAL BRACING &
HORIZONTAL SUPPORT

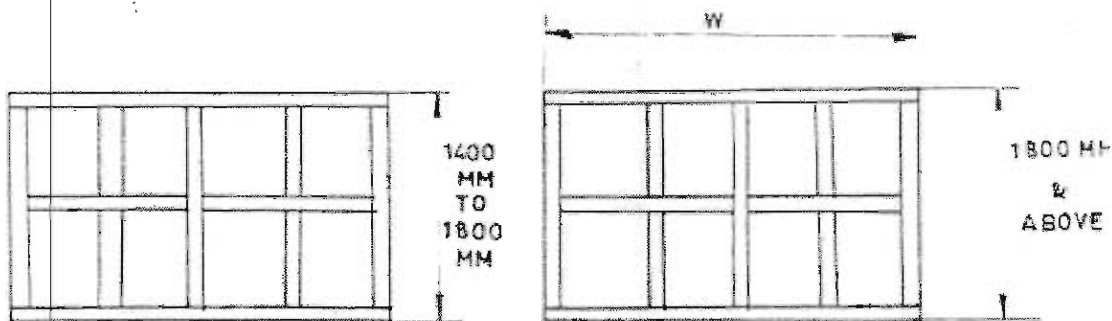


FIG. 5

FIG. 6

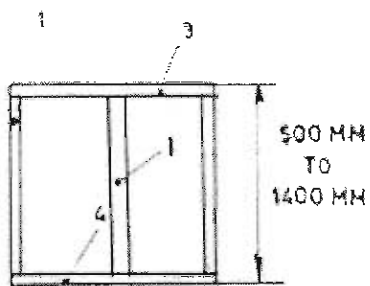


FIG. 7

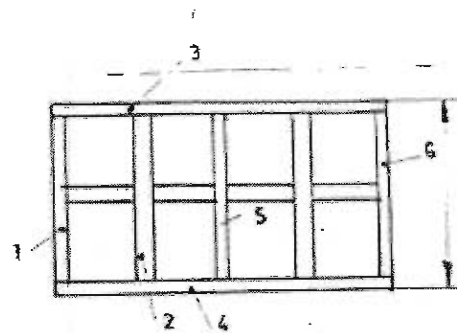


FIG. 8

1. VERTICAL SUPPORT

1, 2, 5, 6 - VERTICAL SUPPORT

3. UPPER HORIZONTAL SUPPORT

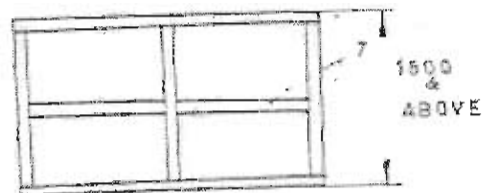
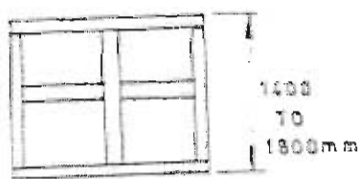
3 - UPPER HORIZONTAL SUPPORT

4. LOWER HORIZONTAL SUPPORT

4 - LOWER HORIZONTAL SUPPORT

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ARRANGEMENT OF DIAGONAL BRACING AND HORIZONTAL SUPPORT



7-MIDDLE HORIZONTAL SUPPORT

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ARRANGEMENT OF PACKING CASE

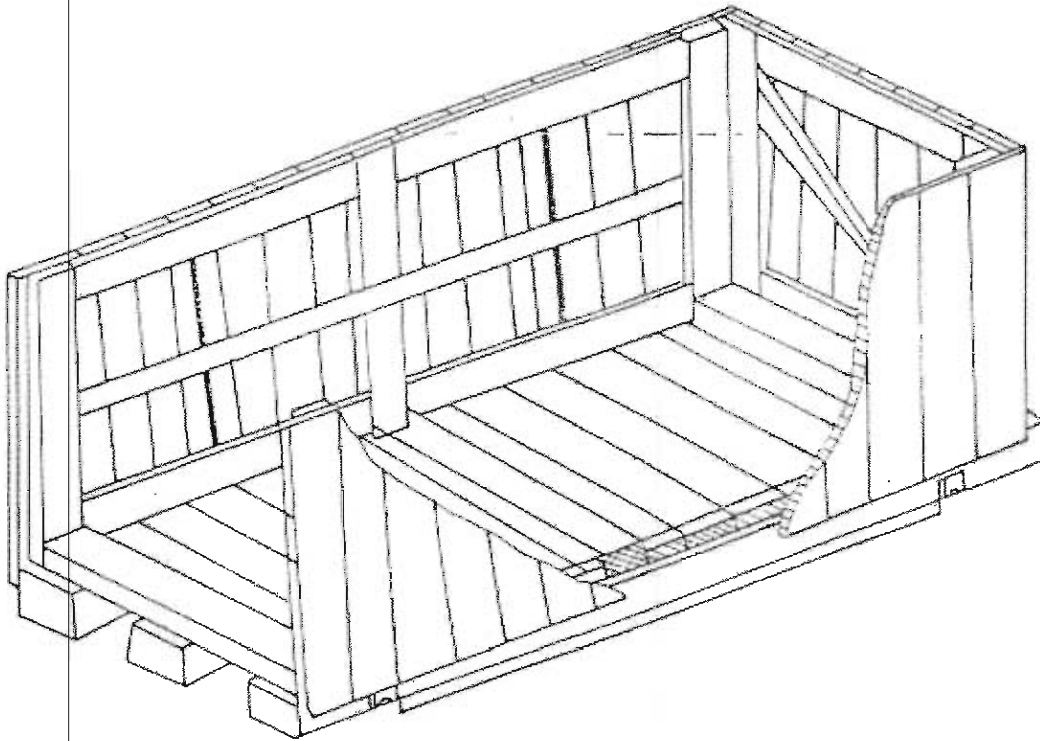


FIG : 11

**Packaging Instructions for Piping
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ARRANGEMENT OF ANGLE IRON CLEATS

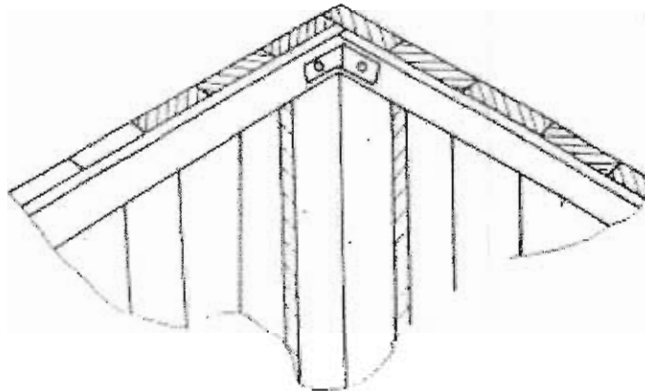


FIG:12

ARRANGEMENT OF C-CLAMPS AROUND CASES

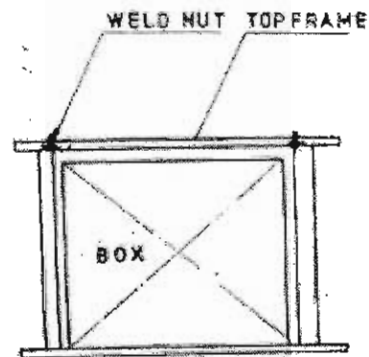
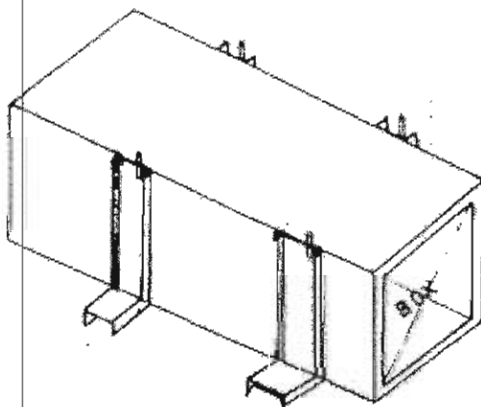


FIG:13

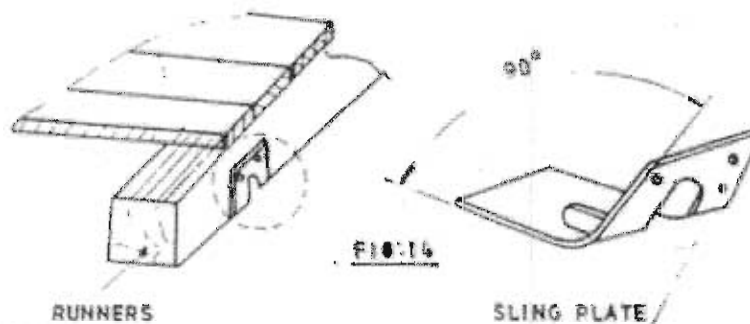
**Packaging Instructions for Piping
Components**

Doc. No
PC: PKG:01

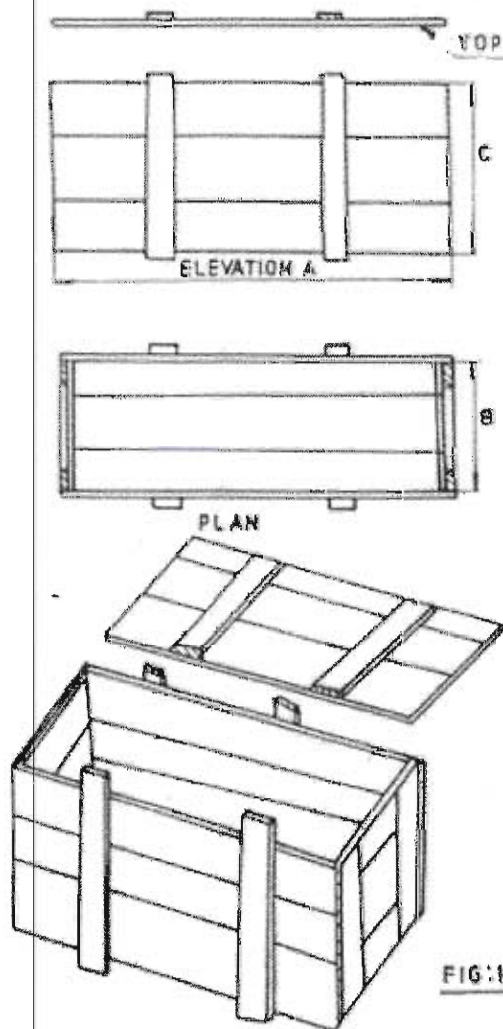
Rev No: 00
Date : 28 /05/ 2014

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**ARRANGEMENT OF SLING - PLATE ON
CASES**



ARRANGEMENT OF SMALL CASES



TYPE 654, 633

DMS TYP	A	B	C
654	600	500	400
633	600	300	300

IN MM ONLY

1. BOTTOM BOARD
 2. CROSS TRAVERS BOARD
- A. UNIFORMLY DISTRIBUTED
B. CONCENTRATED LOAD



Packaging Instructions for Piping Components

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The sizes of boxes given below are indicative. Actual sizes may vary according to size and positioning of component inside.

ANNEXURE – A
WOODEN BOXES

TYPE	L X B X H (MM)	CARRYING CAPACITY IN KGS
633	600x300x300	200
654	600x500x400	500
966	900x600x600	1000
1296	1200x900x600	2000
1122	100x200x200	300
1144	110x400x400	300
1399	1300x900x900	2500
1577	1500 X 700 X 700	1500

TABLE - 1

No. of slides	Length of slides	Weight in (kgs)	Types of loading
2	600 - 1800 mm	0 - 1000	Two slides for central loading near the ends or uniformly distributes load.
3	1801 - 2500 mm	1001 - 5000	Three slides with load concentrates near the end or uniformly distributed load.

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TABLE - 2

LOAD	Length of slides						
	600	800	1000	1200	1300	1500	2000
	CROSS SECTION						
	B x C		c				
			b				
500	30 x 100	30 x 100	30 x 100	30 x 100	30 x 100	30 x 100	30 x 100
800	30 x 100	30 x 100	100 x 100	100 x 100	100 x 100	100 x 100	100 x 100
1000	30 x 100	100 x 100	100 x 100	100 x 100	100 x 100	100 x 100	100 x 100
1500	100 x 100	100 x 100	100 x 100	100 x 100	100 x 100	100 x 100	100 x 100
2000	100 x 100	100 x 100	100 x 100	100 x 100	100 x 100	100 x 100	100 x 100
2500	100 x 100	100 x 100	100 x 100	100 x 100	100 x 100	120 x 150	120 x 150
3000	100 x 100	120 x 150	120 x 150	120 x 150	120 x 150		

TABLE – 3

Distance between top horizontal scans dim 'f'	Distance between the axis of the traverse bar dimension 'E' in fig -3				
	500	600	700	800	900
	Size b x c				
700 – 1000 mm	30 x 100	30 x 100	30 x 100	30 x 100	30 x 100

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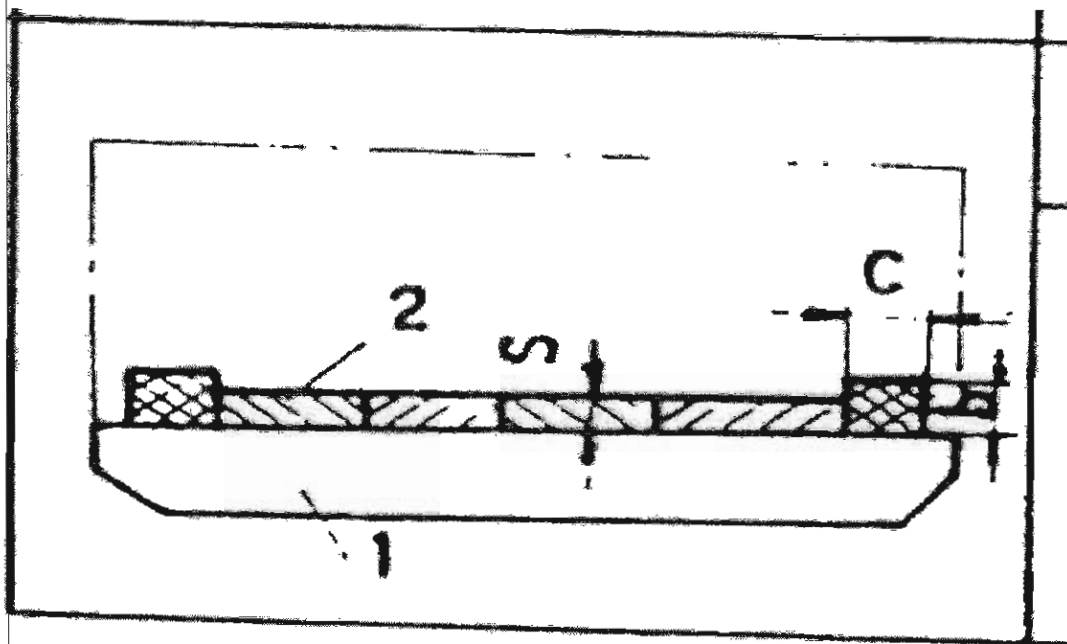
TABLE-4

End and side panels	Width of the panels	Distance Between Longitudinal Support DIM 'D'						
		600	800	1000	1200	1400	1600	1800
		Cross section (b x c) Item 1 to 7						
Fig - 7	600 to 1200	30 x 100	30 x 100	30 x 100	30 x 130	30 x 130	30 x 130	30 x 130
Fig - 8	1201 to 1600	30 x 130	30 x 130	30 x 130	30 x 130	30 x 130	30 x 130	30 x 130
Fig - 9	1601 to 2000	30 x 130	30 x 130	30 x 130	30 x 130	30 x 130	30 x 130	30 x 130
Fig - 10	2001 to 3000	30 x 130	30 x 130	30 x 130	30 x 130	30 x 130	30 x 130	40 x 150
	3001 to 4000	30 x 130	30 x 130	40 x 150	40 x 150	40 x 150	40 x 150	40 x 150

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TABLE-5

BOTTOM TRAVERSE:



Cross section of end traverse bar item 1 fig. X and thickness of bottom board (item – 2)			
Load in kg	Width of the box	Cross section	S
Up to 3000	Above 1000 mm	100 x 100	25

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10. Cautionary symbols



FRAGILE, HANDLE WITH CARE



PROTECT FROM HEAT AND RADIOACTIVE SOURCES



USE NO HOOKS

NOTE: The design of heavy goods packages cannot always resist top lifting by grabhooks.



KEEP DRY

NOTE: Not all cases have waterproof internal liners; plywood used in the construction may not have a waterproof gluing.



THIS WAY UP

NOTE: Certain designs of small cases make it difficult to distinguish top from bottom.



CENTRE OF GRAVITY

NOTE: This should be stencilled as a minimum on the two longest case sides (this information will normally be supplied by the manufacturer of the item(s) packed).



KEEP AWAY FROM HEAT

... kg max.



STACKING LIMITATION

NOTE: The maximum load in kilograms should be marked above the arrow.



International 'slings here' symbol



Packaging Instructions for Piping Components

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11. Packing Reference Table

TABLE-6

No	Packing Method ->	Wooden Crates	Bundles	Saddle supports	HD Polythene Sheet Wrapping	Wooden boxes (Cases)	Spider	Remarks
	Description							
1	Straight Pipes	✓	✓					Crates for random length
2	Pipes with attachments	✓						
3	Pipes with Fittings	✓						
4	Tanks			✓				
5	Mitre bends			✓		✓		Saddle or cases to be used
6	Fasteners					✓		
7	Hanger components					✓		
8	Clamps					✓		
9	Fittings >nb200/ Flanges					✓		Fittings <200 shall be packed in boxes
10	Plates(Cut to size)					✓		
11	SS Pipes		✓		✓			Wrap SS pipes before bundling
12	SS fittings / Flanges	✓				✓		Fittings <200 shall be packed in boxes
15	SS Fasteners					✓		
16	CW piping(>900mm)						✓	To maintain circularity of pipes
17	CW fittings(>900mm)						✓	
18	CW fittings(<900mm)							
19	Structurals(<200mm)		✓					

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12. CHECK LIST

S No	VENDOR TO PROVIDE DETAILS	
1	On despatch of components/items , vendor has to provide the following information for each package of despatched items: 1. Contents of package (Packing list) 2. Corrosion Prevention: Rust-preventive coating /protective painting/Silica gel/ other corrosion inhibitors (please mention) 3. Lifting Instructions: Crane using slings/Fork lift/any other means (please mention) 4. Dimensions (LxBxH) mm: 5. Gross Weight (Kgs): 6. Net Weight (kgs):	
S No	VENDOR TO CONFIRM	
1	Where ever items are despatched as a bundle, they should be clamped together with bolted timber block clamps or bolted steel section clamps with timber block inserts. Adequate number of clamps should be provided along the length of the bundle with sufficient projection of the clamps beyond the width and height of the bundle.	
2	Only such materials which can withstand corrosion and environmental conditions are allowed to be packed in wooden crates or bundles.	
3	In case of wooden packing, planks of 20-25 mm thick and 100-150mm wide needs to be suitably placed at close intervals for giving rigidity to packing appropriately.	
4	Wood used for packing should be seasoned & shall be free of termites.	
5	Damages, if any, resulting due to improper/inadequate packing will be to vendors account. It will be the responsibility of the vendor to identify suitable and adequate packing for his supplies to protect it from damage and/or deterioration during storage, stacking, transport and handling.	
6	All packing should be suitable for loading/unloading by cranes/forklifts & suitable for transport by road. Suitable marking should be made on the packing indicating the lifting positions.	

Annexure A – General Terms & Conditions for Enquiry GEM/2022/B/1940213 dt. 10.02.2022-
Procurement of BW Fittings (SA234WPB-W) for PGB System- NPCIL Kudankulam Project

1. PURCHASE PREFERENCE FOR MAKE IN INDIA

"For this procurement, the local content to categorize a supplier as a Class I local supplier/ Class II local Supplier/ Nonlocal Supplier and purchase preference 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 finalization of contract / PO / WO against this NIT". In the event of any Nodal Ministry prescribing higher or lower percentage of purchase preference and / or local content in respect of this procurement, same shall be applicable.

'Local content' means the amount of value added in India which shall, unless otherwise prescribed by the Nodal Ministry, be the total value of the Item procured (excluding net domestic indirect taxes) minus the value of imported. Content in the item (including all customs duties) as a proportion of the total value, in percent.

'Class-I local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content equal to or more than 50%, as defined under this Order.

'Class-II local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content more than 20% but less than 50%, as defined under this Order.

'Non-Local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content less than or equal to 20%, as defined under this Order.

Ordering will be done package wise and split of ordering shall not be done, following procedure will be followed-

- Among all qualified bids, the lowest bid will be termed as L1. If L1 is from a local supplier, the contract for total package quantity will be awarded to L1.
- If L1 is not from a local supplier, the lowest bidder among the local suppliers, will be invited to match the L1 price of package subject to local supplier's quoted price falling within the margin of purchase preference, and the contract shall be awarded to such local supplier subject to matching the L1 price.
- In case such lowest eligible local supplier fails to match the L1 price, the local supplier with the next higher bid within the margin of purchase preference shall be invited to match the L1 price and so on and contract shall be awarded accordingly. In case none of the local suppliers within the margin of purchase preference matches the L1 price, then the contract for total package quantity may be awarded to the L1 bidder.

"Class-II local supplier" will not get purchase Preference in any procurement.

Document certifying local content and penal action in case of wrong declaration by suppliers.

- The 'Class-I local supplier' / 'Class-II local supplier' at the time of tender, bidding or solicitation shall be required to provide self-certification on their letter head certified by the authorized signatory of the bidder that the item offered meets the minimum local content and shall give details of the location(s) at which the local value addition is made.
- In cases of procurement for a value in excess of Rs. 10 crores, the local supplier shall be required to provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content.

Annexure A – General Terms & Conditions for Enquiry GEM/2022/B/1940213 dt. 10.02.2022-
Procurement of BW Fittings (SA234WPB-W) for PGB System- NPCIL Kudankulam Project

- False declarations will be in breach of the Code of Integrity under Rule 175(1)(i)(h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151 (iii) of the General Financial Rules along with such other actions as may be permissible under law.
- A supplier who has been debarred by any procuring entity for violation of this order shall not be eligible for preference for procurement by any other procuring entity for the duration of the debarment. The debarment for such other procuring entities shall take effect prospectively from the date on which it comes to the notice of other procurement entities, the debarment takes effect prospectively from the date of uploading on the website(s) of The Department of Expenditure, GOI in such a manner that ongoing procurements are not disrupted.
- The onus of submission of appropriately certified documents lies with the bidder and BHEL shall not have any liability to verify the contents and will not be responsible for the same. However, in case BHEL has any reason to doubt the authenticity of the Local Content, BHEL reserves the right to obtain the complete back up calculations before award of contract failing which the bid shall be rejected.

2. PRICE FINALIZATION

“BHEL shall be resorting to Reverse Auction (RA) for this tender as per GEM logics and GEM GTC. RA shall be conducted among all the techno-commercially qualified bidders.

BHEL may decide for further negotiation with L1 bidders”

3. PURCHASE PREFERENCE FOR MSE SUPPLIERS.

- Purchase preference for local MSE's quoting in the tender will be 25%.
- Within the 25% reservation for local MSE's, 3% reservation will be applicable for women owned MSE's and 6.25% reservation will be applicable for MSE's owned by SC / ST.
- Payment for MSE Indigenous vendors will be as per MSMED Act, 2006

Document to be submitted as proof of MSE.

MSE suppliers can avail the intended benefits only if they submit **UDHYAM CERTIFICATE** along with the offer.

Non submission of documents will lead to consideration of their bid at par with other bidders. No benefit shall be applicable for the Enquiry if any deficiency in the above required documents are not submitted before price bid opening. However, credentials of all MSE suppliers will be verified before considering the intended benefits for MSE suppliers at the time of tender evaluation.

Ordering will be done package wise and split of ordering shall not be done, following procedure will be followed-

- Among all qualified bids, the lowest bid will be termed as L1. If L1 is from a MSE supplier, the contract for total package quantity will be awarded to L1.
- If L1 is not from a MSE supplier, the lowest bidder among the MSE suppliers, will be invited to match the L1 price subject to MSE supplier's quoted price falling within the margin of purchase preference, and the contract for total package quantity shall be awarded to such MSE supplier subject to matching the L1 price.
- In case such lowest eligible MSE supplier fails to match the L1 price, the MSE supplier with the next higher bid within the margin of MSE preference shall be invited to match the L1 price and so on and contract shall be awarded accordingly. In case none of the MSE suppliers within the margin of purchase preference matches the L1 price, then the contract for total package quantity will be awarded to the L1 bidder.

**Annexure A – General Terms & Conditions for Enquiry GEM/2022/B/1940213 dt. 10.02.2022-
Procurement of BW Fittings (SA234WPB-W) for PGB System- NPCIL Kudankulam Project**

4. BHEL STANDARD GUARANTEE CLAUSE

The materials are to be guaranteed for satisfactory performance for a period of 24 months from the date of dispatch or 18 months from the date of commissioning / putting into use whichever is earlier and if any defect is noticed during the above period, the same shall be rectified / replaced free of cost on FOR destination basis within a reasonable time, maximum limited to the agreed delivery period. To this effect a guarantee certificate should be sent along with the dispatch documents in the event of an order.

5. Force Majeure

If at any time during the continuance of this contract the performance in whole or part by either party of any obligation under this contract shall be prevented or delayed by reason of war, hostilities, acts of public enemy, civil commotions, sabotage, fire, flood, explosion, epidemic, quarantine restrictions or acts of God(here in referred to as events), then provided the notice of the happenings of any such event is given by either party to other party within 21(twenty one)days from the date of occurrence thereof, either party shall reason of such event, not be entitled to terminate this contract nor shall either party have any claim for damages against other in respect of such non-performance and delay in performance and delivery under the contract shall be resumed soon as practicable after such event has come to an end or ceased to exist and the decision of the BHEL as to whether the deliveries, have been so resumed or not shall be final and conclusive. If the performance in whole or part of any obligation under the contract is for extension of time shall be granted for periods, considered reasonable by the Vendor to the BHEL subject to prompt notification by the Vendor to the BHEL of the particulars of the events and supply to the BHEL if required of any supporting evidence. Any waiver of time in respect of particular part and thereof shall not be deemed to be a waiver of time in respect of remaining deliveries.

6. Arbitrations & Conciliation

Resolution of Disputes:

The Parties agree that if at any time (whether before, during or after the arbitral or judicial proceedings), any Disputes (which term shall mean and include any dispute, difference, question or disagreement arising in connection with construction, meaning, operation, effect, interpretation or breach of the contract/tender which the Parties are unable to settle mutually), arise inter-se the Parties, the same may, be referred by either party to Conciliation to be conducted through Independent Experts Committee to be appointed by competent authority of BHEL from the BHEL Panel of Conciliators.

The proceedings of Conciliation shall broadly be governed by Part-III of the Arbitration and Conciliation Act 1996 or any statutory modification thereof.

Notes:

No serving or a retired employee of BHEL/Administrative Ministry of BHEL shall be included in the BHEL Panel of Conciliators.

Any other person(s) can be appointed as Conciliator(s) who is/are mutually agreeable to both the parties from outside the BHEL Panel of Conciliators.

**Annexure A – General Terms & Conditions for Enquiry GEM/2022/B/1940213 dt. 10.02.2022-
Procurement of BW Fittings (SA234WPB-W) for PGB System- NPCIL Kudankulam Project**

The proceedings of Conciliation shall broadly be governed by Part-III of the Arbitration and Conciliation Act 1996 or any statutory modification thereof and as provided in Annexure X to this Enquiry Conditions.

The Annexure together with its appendices will be treated as if the same is part and parcel hereof and shall be as effectual as if set out herein in these Enquiry Conditions.

Except as provided elsewhere in this Contract, in case amicable settlement is not reached between the parties, in respect of any dispute or difference; arising out of the formation, breach, termination, validity or execution of the Contract; or, the respective rights and liabilities of the Parties; or, in relation to interpretation of any provision of the Contract ; or , in any manner touching upon the Contract, then, either Party may , by a notice in writing to other Party refer such dispute or difference to sole arbitration of an arbitrator appointed as per the Arbitration and Conciliation Act, 1996 (India) or statutory modification or re-enactment thereof and the rules made thereunder and for the time being in force .

The Arbitrator shall pass a reasoned award and the award of the Arbitrator shall be final and binding upon the parties. Subject as aforesaid, the provision of Arbitration & Conciliation Act 1996 (India) or statutory modification or re-enactment thereof and the rules made thereunder and for the time being in force shall apply to the arbitration proceeding under this clause.

The seat of arbitration shall be Chennai, Tamil Nadu, India. The cost of arbitration shall be borne as per the award of the Arbitrator. Subject to arbitration in terms of clause above, the Courts at Chennai, Tamil Nadu, India shall have exclusive jurisdiction over any matter arising out of or in connection with this Contract.

Notwithstanding the existence or any dispute or difference and/or reference for the arbitration, the vendor shall proceed with and continue without hindrance the performance of its obligation under this Contract with due diligence and expedition in a professional manner except where the Contract has been terminated by either Party in terms of this Contract.

In Case of Contract with Public Sector Enterprise (PSE) or a Government Department, the following shall be applicable:

In the event of any dispute or difference relating to the interpretation and application of the provisions of commercial contract(s) between Central Public Sector Enterprises (CPSEs)/Port Trusts inter se and also between CPSEs and Government Departments/Organizations (Excluding disputes concerning Railways, Income Tax, Customs & Excise Departments, such dispute or difference shall be taken up by either party for resolution through AMRCD as mentioned in DPE OM No. 4(1)/2013 –DPE (GM)/FTS-1835 dated 22-05-2018.

7. Laws Governing the Contract:

- a. The contract shall be governed by the Laws of the Government of India in force.

**Annexure A – General Terms & Conditions for Enquiry GEM/2022/B/1940213 dt. 10.02.2022-
Procurement of BW Fittings (SA234WPB-W) for PGB System- NPCIL Kudankulam Project**

- b. Irrespective of the place of execution of the contract, place of delivery, place of payment under the contract, the contract shall be deemed to have been made at the place at which the Acceptance of the tender has been issued.

8. Jurisdiction of the Court

The Courts of the place from where the acceptance of the tender has been issued shall alone have jurisdiction to decide any dispute arising out of or in respect of the contract.

9. Non-Disclosure Agreement (NDA)

The bidders shall enter into the Non-disclosure agreement totally voluntarily, with full knowledge of its meaning and without duress. (Format attached).

10. "**Price to be firm** during the execution of scope of work".

11. **Cartel Formation:**

All the firms should desist from forming cartel as the practice is prohibited under Section 3(3) (a) & (d) of the competition Act 2002.

If any such instance is observed during this tender will attract disciplinary action as per BHEL policies.

12. CANCELLATION / TERMINATION OF CONTRACT, DEFAULT / BREACH OF CONTRACT AND RISK PURCHASE

In case of abnormal delays (beyond the maximum late delivery period as per Penalty clause) in supplies / defective supplies or non-fulfilment of any other terms and conditions given in Purchase Order as enumerated subsequently in this clause, Purchaser shall be entitled to cancel the Order / Contract either in whole or portion thereof without compensation to Seller / Contractor and if the Purchaser so desires, may procure upon such terms and in such manner as deemed appropriate, stores not so delivered or others of similar description where stores exactly complying with particulars are not, in the opinion of the Purchaser, which shall be final, readily procurable, at the risk and cost of the Seller / Contractor and the Seller / Contractor shall be liable to the Purchaser for any excess costs provided that the Seller / Contractor shall continue the performance of the Order / Contract to the extent not cancelled under the provisions of this clause. The Seller / Contractor shall on no account be entitled to any gain on such repurchases. If bidder does not agree to the above Risk Purchase Clause, BHEL reserves the right to reject the offer.

Risk & Cost Clause, in line with Conditions of Contract may be invoked in any of the following cases:

- a. Contractor / supplier's poor progress of the work vis-à-vis execution timeline as stipulated in the Contract, backlog attributable to contractor/ supplier including unexecuted portion of work / supply does not appear to be executable within balance available period (#) considering its performance of execution.
- b. Withdrawal from or abandonment of the work by contractor before completion of the work as per contract.
- c. Non completion of work / Non-supply by the Contractor / supplier within scheduled completion / delivery period as per Contract or as extended from time to time, for the reasons attributable to the contractor / supplier.
- d. Termination of Contract on account of any other reason (s) attributable to Contractor / Supplier.
- e. Assignment, transfer, subletting of Contract without BHEL's written permission resulting in termination of Contract or part thereof by BHEL.
- f. Non-compliance to any contractual condition or any other default attributable to Contractor / Supplier.

Annexure A – General Terms & Conditions for Enquiry GEM/2022/B/1940213 dt. 10.02.2022-
Procurement of BW Fittings (SA234WPB-W) for PGB System- NPCIL Kudankulam Project

Risk and Cost amount against Balance Work

Risk & Cost Amount= $[(A-B) + (A \times H/100)]$

Where,

A= Value of Balance scope of Work / Supply (*) as per rates of new contract

B= Value of Balance scope of Work / Supply (*) as per rates of old contract being paid to the contractor / supplier at the time of termination of contract i.e. inclusive of PVC & ORC, if any.

H= Overhead Factor to be taken as 5

In case (A-B) is less than 0 (zero), value of (A-B) shall be taken as 0 (zero).

***(Balance scope of work / supply)**

Difference of Contract Quantities and Executed Quantities as on the date of issue of Letter for 'Termination of Contract', shall be taken as balance scope of Work / Supply for calculating risk & cost amount.

Contract quantities are the quantities as per original contract. If, Contract has been amended, quantities as per amended Contract shall be considered as Contract Quantities.

Items for which total quantities to be executed have exceeded the Contract Quantities based on drawings issued to contractor from time to time till issue of Termination letter, then for these items total Quantities as per issued drawings would be deemed to be contract quantities.

Substitute / extra items whose rates have already been approved would form part of contract quantities for this purpose. Substitute / extra items which have been executed but rates have not been approved, would also form part of contract quantities for this purpose and rates of such items shall be determined in line with contractual provisions.

However, increase in quantities on account of additional scope in new tender shall not be considered for this purpose.

Note: In case portion of work is being withdrawn, contract quantities pertaining to portion of work withdrawn shall be considered as 'Balance scope of work / supply' for calculating Risk & Cost amount.

LD against delay in executed work / supply in case of Termination of Contract in case of Risk and Cost Option

LD against delay in executed work / supply shall be calculated in line with LD clause of the contract for the delay attributable to contractor / supplier. For limiting maximum LD value, contract value shall be taken as Executed Value of work / supply.

Method for calculation of "LD against delay in executed work / supply" is given below.

- a. Let the time period from scheduled date of start of work till termination of contract excluding the period of Hold (if any) not attributable to contractor / supplier= T1
- b. Let the value of executed work / supply till the time of termination of contract= X
- c. Let the Total Executable Value of work / supply for which inputs / fronts were made available to contractor / supplier and were planned for execution till termination of contract= Y
- d. Delay in executed work / supply attributable to contractor/supplier i.e. $T2 = (1 - X/Y) * T1$
- e. LD shall be calculated in line with LD clause of the Contract for the delay attributable to contractor / supplier taking "X" as Contract Value and "T2" as delay attributable to contractor / supplier.

Note: In case portion of work / supply is withdrawn, no LD shall be applicable for portion of work / supply withdrawn.

**Annexure A – General Terms & Conditions for Enquiry GEM/2022/B/1940213 dt. 10.02.2022-
Procurement of BW Fittings (SA234WPB-W) for PGB System- NPCIL Kudankulam Project**

Recovery from Supplier

Recoveries from contractor / supplier on whom risk & cost has been invoked shall be made from the following:

- a. Dues available in the form of Bills payable to contractor / supplier, SD, BG's against the same contract.
- b. Dues payable to contractor / supplier against other contracts in the same Region / Unit / Division of BHEL.
- c. Dues payable to contractor / supplier against other contracts in the different Region / Unit / division of BHEL.
- d. Legal Options for recovery of dues payable by the supplier / contractor.

13.SUSPENSION OF BUSINESS DEALING

In order to protect the commercial interests of BHEL, it becomes necessary to take action against suppliers / contractors by way of suspension of business dealings, who either fail to perform or are in default without any reasonable cause, cause loss of business / money / reputation, indulge in malpractices, cheating, bribery, fraud or any other misconduct or formation of cartels so as to influence the bidding process or influence the price etc. Suspension of Business Dealings could be in the form of "Hold" or "Banning" a supplier / contractor or a bidder or an applicant for registration as a registered supplier. For this purpose, the abridged version of guidelines hoisted at website http://www.bhel.com/vender_registration/vender.php (Suspension of business dealings with suppliers / contractors) is being followed across all BHEL units. Vendors shall keep themselves aware of these guidelines before submission of their bid.

14.FRAUD PREVENTION POLICY

The Bidder along with their associates / collaborators / sub-contractors / sub-vendors / consultants / service providers shall strictly adhere to BHEL fraud prevention policy displayed on BHEL website at www.bhel.com/pdf/BHEL_Fraud_Prevention_Policy.pdf and shall immediately bring to the notice of BHEL management about any fraud or suspected fraud as soon as it comes to their notice.

15.FORWARDING OF TEST CERTIFICATES & INSPECTION REPORTS

Test certificates (TC) along with Inspection Reports (IR) as called for in the TDC (Three ink signed originals) / approved Quality Plan shall be sent to Manager / Purchase (Fittings), BHEL Piping Centre immediately after the shipment / dispatch of items. Forthcoming section may please be refereed for detailed list of documents to be submitted to respective agencies in BHEL.

TC & IR shall be furnished for each batch of shipment / dispatch. If entire PO quantity is manufactured in one lot but dispatched in phased manner, original "IBR Form" should be submitted with the first consignment. For subsequent consignments, attested Xerox copy of IBR along with copies of TC and IR indicating invoice detail against which original TC and IR was handed over to BHEL shall be submitted. Soft copies of the all the test certificates shall also be submitted through email.

Year of code for the technical standards shall be latest and the specific year shall be indicated in the MTC's as well as applicable IBR Forms.

Additionally foreign vendors shall indicate the item description as "Boiler Components- Fittings" in all the dispatch documents like Bill of Lading, Invoice, Packing list, Country of origin certificate etc. Vendor shall negotiate the documents with bank only "For the net shipment value" (ie. invoice value excluding the LD value).

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16. PAYMENT DOCUMENTS

Payment shall be made against submission of the following documents-

- a. Original GST compliant invoice and 2 copies of the same.
- b. Original site acknowledged Lorry Receipt (Goods Receipt (GR) date for in case of BHEL Trichy stores).
- c. Original inspection report and all original documents as called for in TDC / approved QP.

If one original certificate / LR is applicable for more than one invoice quantity / invoice, Xerox copy is acceptable with original correlation details on the Xerox copy with attestation by suppliers Quality in charge.

GST compliance-

- a. Response to Tenders for Indigenous supplier will be entertained only if the vendor has a valid GST registration No (GSTIN) which should be clearly mentioned in the offer. If the dealer is exempted from GST registration, a declaration with due supporting documents need to be furnished for considering the offer. Dealers under composition scheme should declare that he is a composition dealer supported by the screen shot taken from GST portal. The dealer has to submit necessary documents if there is any change in status under GST.
- b. Supplier shall mention their GSTIN in all their invoices (incl. credit Notes, Debit Notes) and invoices shall be in the format as specified/prescribed under GST laws. Invoices shall necessarily contain Invoice number (in case of multiple numbering system is being followed for billing like SAP invoice no, commercial invoice no etc., then the Invoice No. which is linked/uploaded in GSTN network shall be clearly indicated), Billed to party (with GSTIN) & Shipped to party details, item description as per PO, Quantity, Rate, Value, applicable taxes with nomenclature (like IGST, SGST, CGST & UTGST) separately, HSN/ SAC Code, Place of Supply etc.
- c. All invoices shall bear the HSN Code for each item separately (Harmonized System of Nomenclature)/ SAC code (Services Accounting Code).
- d. Invoices will be processed only upon completion of statutory requirement and further subject to following:
 - Vendor declaring such invoice in Form GST ANX-1
 - Receipt of Goods or Services and Tax invoice by BHEL
- e. As the continuous uploading of tax invoices in GSTN portal (in GST ANX-1) is available for all (i.e. both Small & Large) tax payers under proposed new GST Return System, all invoices raised on BHEL may be uploaded immediately in GST portal on dispatch of material /rendering of services. The supplier shall ensure availability of Invoice in GST portal before submission of invoice to BHEL. Invoices will be admitted by BHEL only if the invoices are available in GSTN portal (in BHEL's GST ANX-2).
- f. In case of discrepancy in the data uploaded by the supplier in the GSTN portal or in case of any shortages or rejection in the supply, then BHEL will not be able to avail the tax credit and will notify the supplier of the same. Supplier has to rectify the data discrepancy in the GSTN portal or issue credit note or debit note (details also to be uploaded in GSTN portal) for the shortages or rejections in the supplies or additional claims, within the calendar month informed by BHEL.
- g. In cases where invoice details have been uploaded by the vendor but failed to remit the GST amount to GST Department (Form PMT-08 or Form GST RET-01 to be submitted) within stipulated time, then GST paid on the

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invoices pertaining to the month for which GST return not filed by the vendor will be recovered from the vendor along with the applicable interest (currently 24% p.a) and all subsequent bills of the vendor will not be processed till filing of the GST return by the vendor

- h. In case GST credit is denied to BHEL due to non-receipt or delayed receipt of goods and/ or tax invoice or expiry of timeline prescribed in GST law for availing such ITC, or any other reasons not attributable to BHEL, GST amount claimed in the invoice shall be disallowed to the vendor.
- i. Where any GST liability arising on BHEL under Reverse Charge (RCM), the vendor has to submit the invoices to BHEL well within the timeline prescribed in GST Law, to enable BHEL to discharge the GST liability. If there is a delay in submission of invoice by the vendor resulting in delayed payment of GST by BHEL along with Interest, then such Interest payable or paid shall be recovered from the vendor.
- j. Under GST regime, BHEL has to discharge GST liability on LD recovered from suppliers/contracts. Hence applicable GST shall also be recoverable from suppliers/contractors on LD amount. For this Tax Invoice will be issued by BHEL indicating the respective supply invoice number.
- k. GST TDS will be deducted as per Section 51 of CGST Act 2017 and in line with Notification 50/2018 – Central Tax dated 13.09.2018. GST TDS certificate which will be generated in GST portal subsequent to vendor accepting the TDS deduction in the GST portal, will be issued to the vendor.