



1.0 SCOPE

- 1.1 This Technical Delivery Conditions specify the requirements in addition to IS:3589 for electrically welded (ERW \ SAW) steel pipes.
- 1.2 The pipes are intended for water services (under Non-IBR Piping system only).
- 1.3 The pipes shall conform to the size, grade and quantity as specified in the purchase order.

2.0 MATERIAL

- 2.1 The plates / coils used for pipe shall meet the requirements as per IS: 3589 Grade Fe 410 MPa including mechanical test requirements.

3.0 DIMENSIONAL TOLERANCES

- 3.1 The tolerances limits are:
 - a) OD:- Upto NB 1600 mm: ± 4 mm; Above NB 1600 mm: ± 6 mm
 - b) Thickness:- Upto 14mm : $+1.3$ mm / -0.8 mm; Above 14 mm : $+1.4$ mm / $- 0.8$ mm.
 - c) Ovality (Difference between major and minor inside diameter): 0.5% maximum
 - d) Squareness of ends: The ends of pipe section shall not vary by more than 3mm at any point from a true plane perpendicular to the axis of the pipe and passing through the center of the pipe at the end.
 - e) Length and quantity tolerance as per P.O.
- 3.2 Other tolerances shall be as per IS: 3589

4.0 MANUFACTURING

- 4.1 The pipe shall be of longitudinally welded or spirally welded as indicated in the P.O.
- 4.2 The ends shall be edge prepared as indicated in the purchase order.
- 4.3 Circumferential seams shall be minimum 1500 mm apart from each other and from ends.
- 4.4 All pipes shall be completely finished and free from surface, sub surface defects such as pits, cracks, weld spatters & laminations etc..

5.0 NDE

- 5.1 For Pipe dia less than 1000mm:- 100 % Hydro test on each pipe + Radiography test for 100mm weld length at both the ends for 10% of the pipes.
- 5.2 For Pipe dia 1000 mm & above :-The NDT for each pipe shall be done by any one of the following options. The vendor shall indicate their choice in the offer.
 - a) 100 % Hydro test along with Radiography test for 100mm weld length on both the ends of each pipe.
 - b) 100 % Ultrasonic test + 10 % Radiography test on weld length (including all T- joints and 100mm weld length at both the ends) for each pipe.
 - c) 100 % Radiography test on weld length of each pipe.
- 5.3 The Ultrasonic test / Radiography test shall be carried out as per ASME Sec-V and shall be accepted as per ASME B31.1 Cl:136.4.6 / Cl:136.4.5.

6.0 INSPECTION

- 6.1 All pipes shall be inspected by the vendor prior to BHEL / Customers' Inspection. BHEL or BHEL authorized inspector / Customer will select the pipes at random and carryout the inspection. The necessary Material Despatch Clearance Certificate is to be obtained by the vendor prior to the despatch of material.

G.Venkataramani, Engg&Quality

Approved by

G.Panneer Selvam, QA

K. Ganesan, QPC&MPL



7.0 PAINTING AND PACKING

- 7.1 The pipes if dispatched to BHEL Stores shall be coated with resin type translucent rust preventive on the outside unless otherwise specified in the P.O. Pipes of diameter above NB 450 mm, shall be coated inside also.
- 7.2 The pipes if dispatched to project site directly shall be coated outside & inside as indicated in P.O.
- 7.3 In case of any special coating like PU, Glass Flake etc.. the vendor shall get BHEL approval for their QP and Procedure for application of coating.
- 7.4 Internal coating shall not be applied for 100mm length from each end to facilitate site joints.
- 7.5 Spiders are to be provided on both ends of the pipes as per the drawing indicated in the enquiry / Purchase Order.

8.0 MARKING

- 8.1 The pipes dispatched to **BHEL Stores** 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) Pipe number 6) Inspector's seal
- 8.2 The pipes despatched directly to project site as **DTS**, the following details (furnished in the P.O. or separately) shall be **paint stencilled & hard punched** on both ends of the pipes in addition to the above.
- Work order No ➤ DU No ➤ Project name
➤ Quantity ➤ Weight
- 8.3 For the pipe dia 1000mm and above marking shall be done on internal surface in the uncoated area (i.e) within 100mm from pipe ends. The hard punching shall be done at one end and paint stencilling at other end. In case of pipes of dia less than 1000mm the marking shall be done on outside surface.

9.0 CERTIFICATES

- 9.1 Three original test certificates typed in English shall be submitted along with the inspection report.
- 9.2 The test certificate shall furnish the following details.
- a. BHEL P.O Number & Amendment Number(if any)
b. BHEL P.O. Serial Number
c. Test Certificate number.
d. Specification, grade, size, quantity
e. Heat number of plate (or pipe number with traceability to heat number)
f. Chemical composition and Mechanical properties
g. Hydrostatic test, UT, RT reports as applicable.
h. Dimensional report
i. Painting details

Records of Revn:06 :- i) Para 3.1, 5.1, 7.1, 8.1, 8.2 & 9.2 are revised
ii) Para 5.2, 5.3, 7.2, 7.3, 7.4 & 8.3 are added.

G.Venkataramani, Engg&Quality

Approved by

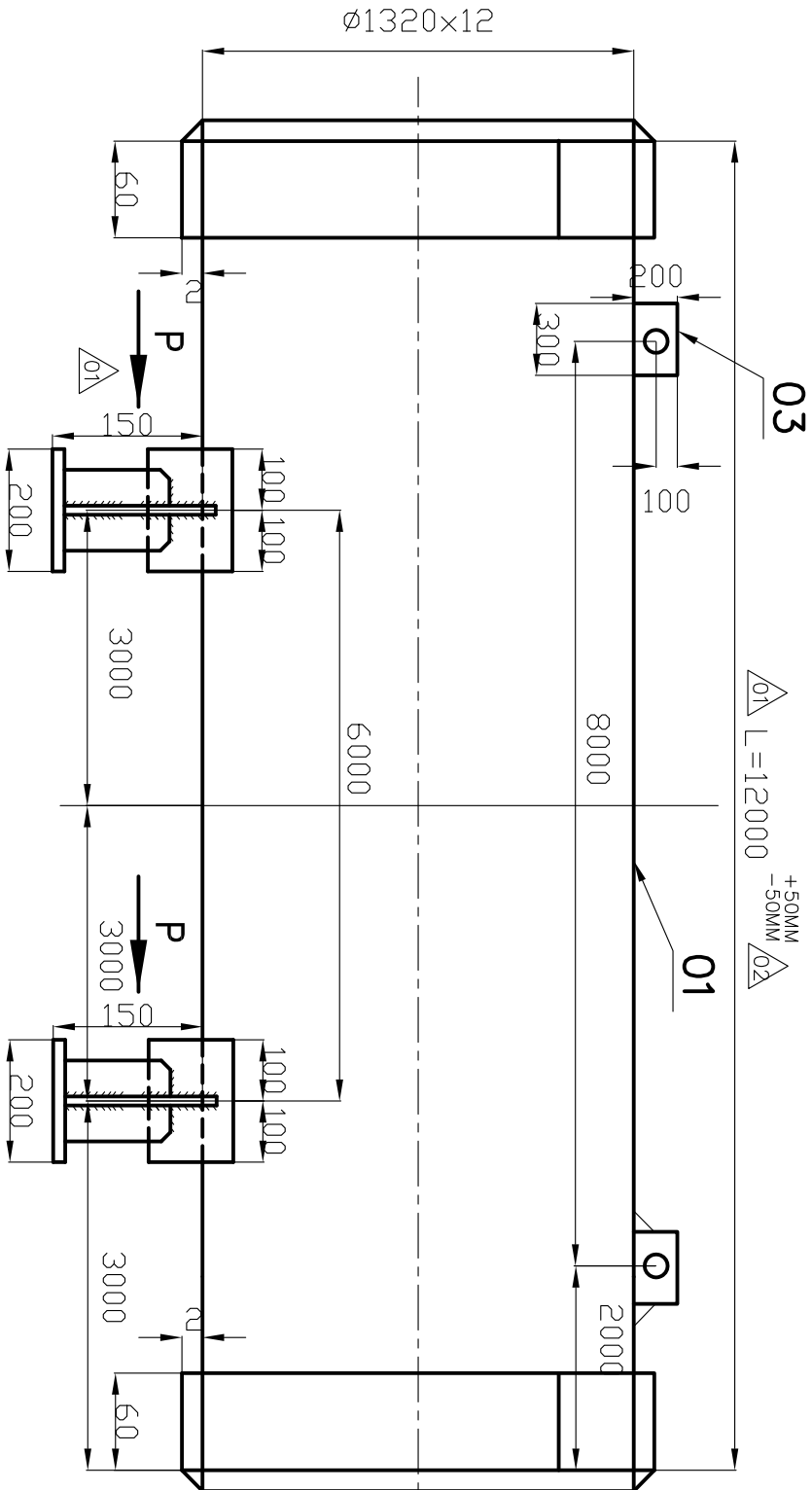
G.Panneer Selvam, QA

K.Ganeshan, OPC&MPL

7088CC-894-08-3

ON GNWWARD

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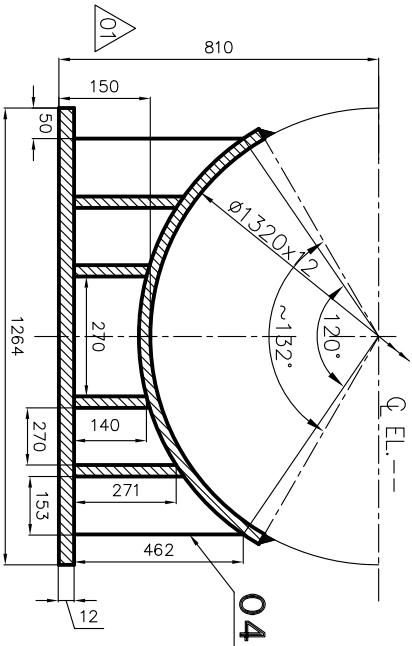
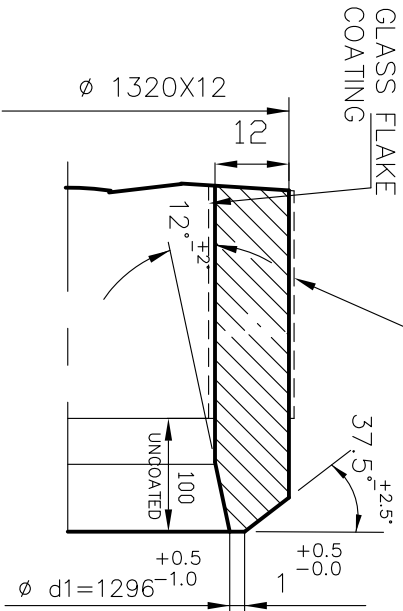
- NOTES:
- 01. AFTER WELDING THE SADDLE AND LIFTING LUG PIPE SHALL BE COATED INSIDE WITH GLASS FLAKE
 - 02. PIPE SHALL BE PAINTED OUTSIDE AS PER APPROVED QP. 7270:QPC:12
 - 03. AFTER COATING AND PAINTING ENDCAP SHALL BE FIXED WITH TACK WELDING AT 0°, 90°, 180° AND 270°
 - 04. PIPES MAY BE SUPPLIED WITH LENGTH 10M TO 12.5M WITH UNIFORM LENGTH.
 - 05. ASSEMBLY WEIGHT DOES NOT INCLUDE SPIDER WEIGHT
 - 06. PIPES SHALL BE CARBON STEEL, IS2062 PLATES ROLLED AND WELDED AS PER IS3589

PIPE WEIGHT (FOR 12M)	4644.759
LUG+SADDLE+CAP WEIGHT	286.954
TOTAL ASSEMBLY WEIGHT	4931.713

REFERENCE DRG/DOCUMENTS:

01. FOR COATING / PAINTING REFER QP. 7270:QPC:12 (LATEST REV.)
 02. SPIDER ARRANGEMENT TO BE WELDED IN UNCOATED AREA ONLY.
- FOR SPIDER ARRANGEMENT DETAILS REFER DRG.4-80-468-81492

EXTERNAL COATING AS PER APPROVED QP.



PIPE END DETAIL

REV	DATE	ALTERED	P SURESH	REV	DATE	ALTERED	P SURESH
02	24.10.17	APPROVED	R. SESHAGIRI	01	13.09.17	APPROVED	R. SESHAGIRI
ZONE	NOTE NOS. 01,02 MODIFIED PIPE LENGTH TOLERANCE CHANGED.			ZONE	PIPE LENGTH, END COVER THICKNESS AND SADDLE SUPPORT HEIGHT CHANGED.		

VIEW - P

SADDLE SUPPORT WELDING DETAIL.
SADDLE SUPPORT ASSEMBLY WEIGHT IS 116KG (APPROX.)

ITEM NO.	DESCRIPTION	MATERIAL SPECN	QTY	UNIT WEIGHT
04	SADDLE SUPPORT(PL 12THK)	IS2062GRB	2	115.758
03	LIFTING LUG (PLATE 16THK)	IS2062GRB	2	7.289
02	END COVER (SHEET 1.6THK)	IS1079FE330	2	20.430
01	PIPE OD1320X12 L=12000	IS3589	1	4644.759



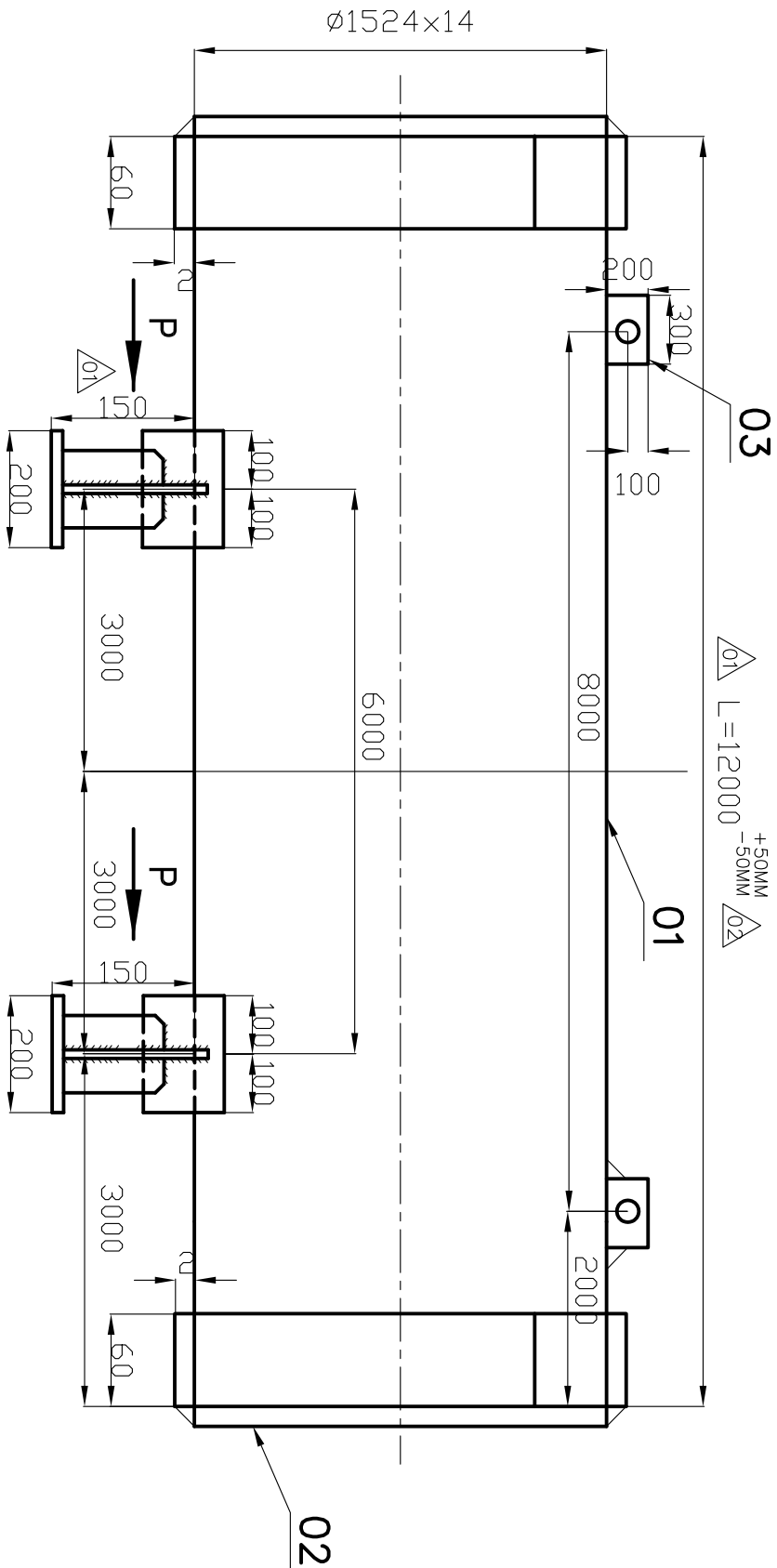
BHARAT HEAVY ELECTRICALS LTD.,
PIPING CENTRE, CHENNAI, 600 017

NAME	SIGN	DATE
P SURESH		04.09.17
R SESHAGIRI		04.09.17
C KARUNAKARAN		04.09.17

DEPT.	GRADE OF UN TOL. DIM	SCALE	WEIGHT (Kg).	REF TO ASSY / OLD DRG.
CODE	C/M/F	N.T.S.	4931.713	

PIPE OD1320X12 WITH SADDLE, END COVER AND LIFTING LUG	U 01	DRAWING No.	3-80-468-33807	REV	02
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01. AFTER WELDING THE SADDLE AND LIFTING LUG PIPE SHALL BE COATED INSIDE WITH GLASS FLAKE

02. PIPE SHALL BE PAINTED OUTSIDE AS PER APPROVED QP. 7270:QPC:12

03. AFTER COATING AND PAINTING ENDCAP SHALL BE FIXED WITH TACK WELDING AT 0°, 90°, 180° AND 270°

04. PIPES MAY BE SUPPLIED WITH LENGTH 10M TO 12.5M WITH UNIFORM LENGTH.

05. ASSEMBLY WEIGHT DOES NOT INCLUDE SPIDER WEIGHT

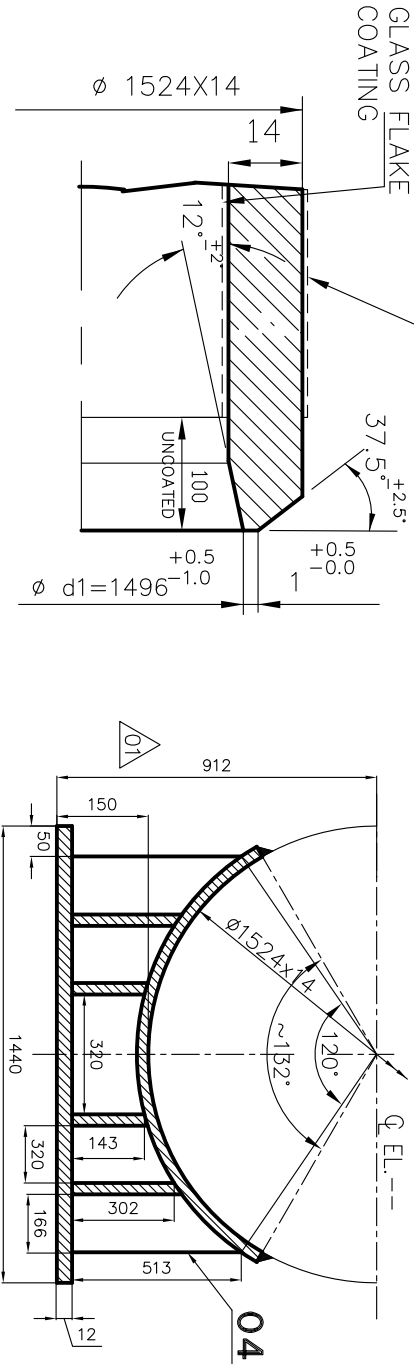
06. PIPES SHALL BE CARBON STEEL, IS2062 PLATES ROLLED AND WELDED AS PER IS3589

PIPE WEIGHT (FOR 12M)	6255.748
LUG+SADDLE+CAP WEIGHT	348.540
TOTAL ASSEMBLY WEIGHT	6604.288



- REFERENCE DRG/DOCUMENTS:
01. FOR COATING / PAINTING REFER QP. 7270:QPC:12 (LATEST REV.)
 02. SPIDER ARRANGEMENT TO BE WELDED IN UNCOATED AREA ONLY. FOR SPIDER ARRANGEMENT DETAILS REFER DRG.4-80-468-81492

EXTERNAL COATING AS PER APPROVED QP.



PIPE END DETAIL

SADDLE SUPPORT WELDING DETAIL.
SADDLE SUPPORT ASSEMBLY WEIGHT IS 138KG (APPROX.)

VIEW - P

REV	DATE	ALTERED	P SURESH	REV	DATE	ALTERED	P SURESH
		APPROVED	R SESHAGIRI			APPROVED	R SESHAGIRI
02	24.10.17	NOTE NOS. 01,02 MODIFIED PIPE LENGTH TOLERANCE CHANGED.		01	13.09.17	PIPE LENGTH, END COVER THICKNESS AND SADDLE SUPPORT HEIGHT CHANGED.	
ZONE				ZONE			
ALL REVISIONS INDICATED AS 				ALL REVISIONS INDICATED AS 			

				BHARAT HEAVY ELECTRICALS LTD., PIPING CENTRE, CHENNAI, 600 017			
DEPT.	GRADE OF UN TOL. DIM	SCALE	WEIGHT (Kg).	DRN	P SURESH	SIGN	DATE
CODE	C/M/F	N.T.S.	6604.288	CHD	R. SESHAGIRI		04.09.17
APPD				C KARUNAKARAN			04.09.17
REF TO ASSY / OLD DRG.							
TITLE				CARD CODE	DRAWING No.	REV	
PIPE OD1524X14 WITH SADDLE, END COVER AND LIFTING LUG				U 01	3-80-468-33808	02	

 BHARAT HEAVY ELECTRICALS LIMITED PIPING CENTRE, CHENNAI- 17 QUALITY ASSURANCE & CONTROL DEPT.			PAINTING SCHEME FOR LP PIPING (CW / ACW / ECW / Plant water, Air Piping, etc...,) PROJECT NAME : - ENNORE SEZ STPP - (2X660MW) BHEL CUSTOMER Nos : 7270, 7271, 7272(Aux.Boiler) & 7273(Outside TG Hall).									QPNo: 7270:QPC:12 REV.NO: 02 Dt : 16.05.2017	
Sl. NO	PGMA / Description	Surface Preparation & Surface Profile	Primer coat		Intermediate coat			Finish coat			Total DFT Microns (Min.)	REMARKS	
			Primer	No of coats	Paint	No of coats	Shade	Paint	No of coats	Shade			
1	2	3	4	5	6	7	8	9	10	11	12	13	
1	(a) Internal Surface - Steel Pipe - Seawater handling	Blast Cleaning SSPC SP-10 / SA 2½ (Refer Note 1)	Isophthalic polyester / acrylic co-polymer filled with glass flakes coating									1000 Microns (min)	(Refer Note 2)
	(b) Holiday test (Refer Note 3)	Holiday testing as per Paint Manufacturer's Quality Plan approved by BHEL. Holiday test Equipment shall be calibrated before testing.											
2	External Surface --Buried Piping / Encased in concrete (Temporary Protection for transportation from works to site). **Further protection to be done by BHEL Erection Group as per Contract requirement.	SSPC-SP3 / Power Tool Cleaning	Red Oxide Zinc Phosphate (Alkyd base to IS 12744)	1 (30 Microns per coat)	-----	-----	-----	-----	-----	-----	30 Microns		
2A	External Surface --Buried Piping - Not Encased in concrete	Blast cleaning to SSPC SP-10 / SA 2½	Primer : Coal Tar primer compatible with coal tar enamel grade. 2 coats of 35 microns each. Total DFT:70microns. Finish Coat : Coal tar enamel (25mm overlap min) Type-I to IS7193-1974 conforming to table of 10 of IS10221-1982. Tickness - 4.0mm (or) Coal Tar Wrapping conforming to IS 15337-2003; Tickness - 4.0mm Test : Bond/Adhesion; Holiday test									Shall be done by BHEL's Erection Group.	
3	Internal Surface -Other than Sea water handling - (For 800Nb and above diameters)	Blast cleaning to SSPC SP-10 / SA 2½	Epoxy Polyamide resin based Zinc Phosphate Primer	2 (35 microns per coat)	Epoxy resin with MIO	1 (75 microns per coat.)	-----	Epoxy Polyamide finish Paint	1 \$ (40 microns per coat)	Smoke Grey Shade No 692 of IS 5 (Refer Note-4)	145 at shop + 40 at site	\$: 1 coat of DFT-40 microns finish coat at site	
4	External Surface - Over ground piping (For all diameters)	Blast cleaning to SSPC SP-10 / SA 2½	Epoxy Polyamide resin based Zinc Phosphate Primer	2 (35 microns per coat)	Epoxy resin with MIO	1 (75 microns per coat.)	-----	Epoxy Polyamide finish Paint	1 \$ (40 microns per coat)	Smoke Grey Shade No 692 of IS 5 (Refer Note-4)	145 at shop + 40 at site	\$: 1 coat of DFT-40 microns finish coat at site	
5	Galvanised and Stainless steel Piping	No painting . Site painting requirements as indicated in specification (Vol-III, cl.13.10.5) shall be done by BHEL's erection group.											
Notes: 1. Blast cleaning to near white metal to obtain roughness as per paint manufacturer's recommendations. 2. Application and inspection (including DFT) of Isophthalic polyester / acrylic co-polymer filled with glass flakes shall be as per Paint manufacturer's QP and Painting procedure approved by BHEL. 3. Witness by BHEL / BHEL nominated inspection agency. 4. Shade for finish coat to be done at site shall be as per project specification/contract requirement.													
 PREPARED BY : VIVEKANANDA YELLU, Dy.Mgr/QA		 APPROVED BY: A.P.MADHAVANKUTTY, AGM/Q		For Customer use :								Page 1/1	



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**Standard Technical Specification for Glass Flake Reinforced Ambient
cure Polyester Acrylic Polimer Coating for Internal surface of steel
pipes handling sea-water**

APPLICABLE TO UTILITY AND INDUSTRIAL UNITS

00	16.12.09	Fresh Issue	C.Karunakaran	C.Karunakaran	S.Jayakumar
Rev	Date	Alteration	Prepared	Checked	Approved



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- 2 PRODUCT SPECIFICATION**
- 3 SURFACE PREPARATION**
- 4 PRIMING**
- 5 COATING**
- 6 FIELD JOINTING**
- 7 INSPECTION AND TESTING**



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**Technical Specification for Glass Flake Reinforced Ambient cure
Polyester Acrylic Polymer Coating for Internal surface of steel pipes
handling sea-water**

1 SCOPE

This specification covers the technical details of the two-component glass flake reinforced ambient cured polyester coating, its method of application, surface preparation requirements, testing requirement and QA/inspection criteria.

The glass-flake reinforced polyester coating material lining process shall be carried out at lining applicator's works before the internally lined pipes and components are dispatched to site, where only field joints are to be carried out at the previously planned cut-back portion of the pipes and components. In exceptional cases large diameter fittings and specialities may be allowed to be internally lined at site-fabrication yard/in-situ through automatic/semi-automatic or manufacturer recommend means to achieve same level of finish and quality as done in shop.

2 PRODUCT SPECIFICATION

The product (coating material shall be high build, fast cure anti-corrosive coating meant for application in aggressive corrosion environment like sea-water application in the internal surfaces of pipes. The recommended working "Volume Solids" is 85% or it should be as recommended by manufacturer. Method of application of this coating material by Airless spray technique and in exceptional cases of unforeseen encounter with "pits" in metal, through brush to ensure proper treatment.

The following recommended test data may be adhered to for the coating material. The same will be reviewed and approved by BHEL.

Coating thickness shall be 1000 micron (DFT) minimum.



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Test type	Test Method	Specification Details	Typical Results
Cathodic Disbondment	ASTM G8 “Cathodic Disbonding of Pipeline Coatings” Method A	2x600 micron DFT applied directly to SA 2.5 blasted steel.	Typically less than 1 mm disbondment following 30 days exposure
Immersion	IS 2812 Part 2 (Modified)- “Resistance to sea water immersion @ 40 Deg C.	1x500 micron DFT applied directly to SA 2.5 blasted steel.	No film defects following 8000 hours exposure.
Salt Spray	ISO 7523- Resistance to neutral salt spray (fog) @ 35 Deg C.	2x600 micron DFT applied directly to SA 2.5 blasted steel.	No film defects, and no rust creep at the scribe following 6000 hours exposure.
Abrasion	ASTM D 4060- “Abrasion Resistance of coatings via the Taber Abraser”	1x500 micron DFT applied directly to SA 2.5 blasted steel.	Average of 224 mg weight loss per 1000 cycles using H18 wheels and a 1 Kg loading.
Adhesion	ISO 4624-“Pull off test for adhesion” using portable adhesion testers.	2x500 micron DFT applied directly to SA 2.5 blasted steel.	Not less than 7 MPa (1015 psi) when using a PAT Model GM 01 hydraulic adhesion tester on 5mm thick steel.
Elongation @ Break	BS 6319 Part 7	1 x 500 micron DFT “free film”	Elongation 0.61%
Impact	BS 3900 Part E3	1x500 micron DFT applied directly to SA 2.5 blasted steel.	Direct impact Resistane-6.5 Joules
Tensile Strength	BS 6319 Part 7	1x500 micron DFT “free film”	An average of 210 Kg/cm2 is required to



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			achieve fracture of the coating.
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3 SURFACE PREPARATION

All surfaces to be coated should be clean, dry and free from contamination. Prior to paint application all surfaces should be assessed and treated in accordance with ISO 8504:1992. Wherever necessary, the weld spatters are to be removed and wherever required weld seams and sharp edges are to be smoothened. Oil and grease shall be removed in accordance with SSPC SP1 Solvent cleaning.

The lining shall only be applied on surfaces prepared by abrasive blast cleaning to SA 2½ (ISO 8501-1:1988) or SSPC-SP-10. A sharp, angular surface profile of 75-100 microns (3-4 mils) shall be achieved.

The lining shall be applied before oxidation of the steel occurs. If oxidation does occur the entire oxidized areas should be reblasted to the standard specified above. Surface defects revealed by blast cleaning process, should be ground, filled or treated in the appropriate manner. Surfaces must be primed with suitable primer before oxidation occurs. Chlorides are also to be removed before blast cleaning,

4 PRIMING

Priming shall be done with a priming material suitable for the coating/lining material being applied and usually should be between 15-50 micron DFT (0.6-2 mils) or as recommended by manufacturer. Priming shall be done before oxidation of blasted surface starts to set in. Coating/lining material shall be applied on primed surface within the time frame recommended strictly by the coating/lining material manufacturer.

5 COATING



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The coating material shall be applied in requisite thickness in accordance with recommended working procedure for application by manufacturer and shall be done by Airless spray technique within the recommended temperature and humidity range.

6 FIELD JOINTING

Field jointing shall be undertaken by the applicator agency strictly as per the recommended instruction of the manufacturer with stipulated “cut-back/”hold-back” dimensions earmarked for such jointing and abrasion/cleaning procedure.

7 INSPECTION AND TESTING

- 7.1 All work under this specification shall be subject to inspection by BHEL or its representatives. All parts of work shall be accessible. The bidder shall correct such work as is found defective under the specifications.
- 7.2 The following tests shall be made by the applicator prior to during and after priming and coating application.
 - 7.2.1 Blast surface profile using elcometer 123 or equivalent surface profile gauge. The average of readings from five randomly selected areas shall constitute the average surface profile. Test area to be flat (without culvature).
 - 7.2.2 The dry film thickness shall be checked with a magnetic mil gauge (positest by Defeisko or equivalent). The average of readings from five randomly selected areas shall constitute the film thickness. Individual readings shall not vary by more than 25% from the mean.
 - 7.2.3 Holidays testing using high voltage holiday detector (Tinker Razor or equivalent) as per NACE International RP 0188-90 “Holiday Testing”. Coating to have cured at least 24 hours prior to holiday test. Due care should be taken not to use voltage exceeding the dielectric strength of the coating. The location of the holidays shall be noted on the coated surface for repair.
- 7.3 Pull of Adhesion to stell shall be measured using Elcomeer/ Postitest / Equivalent adhesion tester as per ASTM D 4541. Average reading from



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three (3) randomly selected spots shall constitute one test and shall be at least 10 (ten) N/mm². Adhesion test shall be carried out on fully cured coating (7 days at 25 Deg C) & on flat (without curvature) test area.

Minimum 5 nos. tests shall be carried out in one (1) Km at locations desired by Engineer in charge/site engineer/Project Manager on behalf of Employer. If the adhesion is not satisfactory, a systematic inspection (adhesion test) of all pipe shall be carried out and all pipes not meeting this adhesion requirement shall be rejected. Damaged test areas of acceptable pipe shall be repaired as indicated in clause above. The rejected pipes shall be cleaned by blasting and re-coated.

- 7.4 All previously carried out test-certificates on material shall be furnished for Employer's scrutiny that have done already by manufacturer.

INTEGRITY PACT

Between

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

and

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

Preamble

The Principal intends to award, under laid-down organizational procedures, contract/s for
ENQ 4011700019/08.11.2017 - SUPPLY OF WELDED PIPES (FROM PLATES IS 2062)
WITH ATTACHMENTS AND INTERNAL GLASS FLAKE COATING FOR ENNORE

PROJECT - 2 X 660 MW. The Principal values full compliance with all relevant laws of the land, rules and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder(s)/ Contractor(s).

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

Section 1 – Commitments of the Principal

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

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

- 2.1 The Bidder(s)/ Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.
 - 2.1.1 The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to the Principal or to any of the Principal's employees involved

in the tender process or the execution of the contract or to any third person any material, immaterial or any other benefit which he / she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

- 2.1.2 The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any illegal or undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.
- 2.1.3 The Bidder(s)/ Contractor(s) will not commit any penal offence under the relevant IPC/ PC Act; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
- 2.1.4 The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.
- 2.2 The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

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

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

Section 4 – Compensation for Damages

- 4.1 If the Principal has disqualified the Bidder from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover the damages equivalent Earnest Money Deposit/Bid Security.
- 4.2 If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to section 3, the Principal shall be entitled to demand and recover from the Contractor liquidated damages equivalent to 5% of the contract value or the amount equivalent to Security Deposit/Performance Bank Guarantee, whichever is higher.

Section 5 – Previous Transgression

- 5.1 The Bidder declares that no previous transgressions occurred in the last 3 years with any other company in any country conforming to the anti-corruption approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.
- 5.2 If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

Section 6 – Equal treatment of all Bidders/ Contractors/ Sub-contractors

- 6.1 The Bidder(s)/ Contractor(s) undertake(s) to obtain from all subcontractors a commitment consistent with this Integrity Pact and report Compliance to the Principal. This commitment shall be taken only from those sub-contractors whose contract value is more than 20 % of Bidder's/ Contractor's contract value with the Principal. The Bidder(s)/ Contractor(s) shall continue to remain responsible for any default by his Sub-contractor(s).
- 6.2 The Principal will enter into agreements with identical conditions as this one with all Bidders and Contractors.
- 6.3 The Principal will disqualify from the tender process all bidders who do not sign this pact or violate its provisions.

Section 7 – Criminal Charges against violating Bidders/ Contractors /Sub-contractors

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the Vigilance Office.

Section 8 –Independent External Monitor(s)

- 8.1 The Principal appoints competent and credible Independent External Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.

- 8.2 The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, BHEL.
- 8.3 The Bidder(s)/ Contractor(s) accepts that the Monitor has the right to access without restriction to all contract documentation of the Principal including that provided by the Bidder(s)/ Contractor(s). The Bidder(s)/ Contractor(s) will grant the monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his contract documentation. The same is applicable to Sub-contractor(s). The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/ Contractor(s) / Sub-contractor(s) with confidentiality.
- 8.4 The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the contract provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.
- 8.5 As soon as the Monitor notices, or believes to notice, a violation of this agreement, he will so inform the Management of the Principal and request the Management to discontinue or take corrective action, or heal the situation, or to take other relevant action. The Monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.
- 8.6 The Monitor will submit a written report to the CMD, BHEL within 8 to 10 weeks from the date of reference or intimation to him by the Principal and, should the occasion arise, submit proposals for correcting problematic situations.
- 8.7 The CMD, BHEL shall decide the compensation to be paid to the Monitor and its terms and conditions.
- 8.8 If the Monitor has reported to the CMD, BHEL, a substantiated suspicion of an offence under relevant IPC / PC Act, and the CMD, BHEL has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the

Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.

8.9 The number of Independent External Monitor(s) shall be decided by the CMD, BHEL.

8.10 The word 'Monitor' would include both singular and plural.

Section 9 – Pact Duration

9.1 This Pact begins and shall be binding on and from the submission of bid(s) by bidder(s). It expires for the Contractor 12 months after the last payment under the respective contract and for all other Bidders 6 months after the contract has been awarded.

9.2 If any claim is made / lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified as above, unless it is discharged/ determined by the CMD, BHEL.

Section 10 – Other Provisions

10.1 This agreement is subject to Indian Laws and jurisdiction shall be registered office of the Principal, i.e. New Delhi.

10.2 Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.

10.3 If the Contractor is a partnership or a consortium, this agreement must be signed by all partners or consortium members.

10.4 Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

10.5 Only those bidders/ contractors who have entered into this agreement with the Principal would be competent to participate in the bidding. In other words, entering into this agreement would be a preliminary qualification.



For & On behalf of the Principal
S. VARADARAJAN
Sr. Manager - Purchase
BHEL - Piping Centre
80, (Office Seal) C.N. Road, T. Nagar
Chennai - 600 017.

For & On behalf of the Bidder/ Contractor

(Office Seal)

Place Chennai-17

Date 08.11.2017

Witness: _____

(Name & Address) _____

Witness: _____

(Name & Address) _____

BANK GUARANTEE FOR PERFORMANCE SECURITY

Bank Guarantee No:

Date:

To

NAME

& ADDRESSES OF THE BENEFICIARY

Dear Sirs,

In consideration of the Bharat Heavy Electricals Limited ¹ (hereinafter referred to as the 'Employer' which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns) incorporated under the Companies Act, 1956 and having its registered office at _____ through its Unit at.....(name of the Unit) having awarded to (Name of the Vendor / Contractor / Supplier) having its registered office at _____ ² hereinafter referred to as the 'Contractor/Supplier', which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns), a contract Ref No.....dated³ valued at Rs.....⁴ (Rupees -----)/FC.....(in words.....) for⁵ (hereinafter called the 'Contract') and the Contractor having agreed to provide a Contract Performance Guarantee, equivalent to% (.... Percent) of the said value of the Contract to the Employer for the faithful performance of the Contract,

we,, (hereinafter referred to as the Bank), having registered/Head office at and inter alia a branch at being the Guarantor under this Guarantee, hereby, irrevocably and unconditionally undertake to forthwith and immediately pay to the Employer a maximum amount Rs ----- (Rupees -----) without any demur, immediately on a demand from the Employer, . Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. _____.

We undertake to pay to the Employer any money so demanded notwithstanding any dispute or disputes raised by the Contractor/ Supplier in any suit or proceeding pending before any Court or Tribunal relating thereto our liability under this present being absolute and unequivocal.

The payment so made by us under this Guarantee shall be a valid discharge of our liability for payment thereunder and the contractors/supplier shall have no claim against us for making such payment.

We thebank further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Contract and that it shall continue to be enforceable till all the dues of the Employer under or by virtue of the said Contract have been fully paid and its claims satisfied or discharged.

We BANK further agree with the Employer that the Employer shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Contract or to extend time of performance by the said Contractor/Supplier from time to time or to postpone for any time or from time to time any of the powers exercisable by the Employer against the said Contractor/Supplier and to forbear or enforce any of the terms and conditions relating to the said Agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Contractor/Supplier or for any forbearance, act or omission on the part of the Employer or any indulgence by the Employer to the said Contractor/Supplier or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.

The Bank also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Contractor and notwithstanding any security or other guarantee that the Employer may have in relation to the Contractor's liabilities.

This Guarantee shall remain in force upto and including.....⁶ and shall be extended from time to time for such period as may be desired by Employer.

This Guarantee shall not be determined or affected by liquidation or winding up, dissolution or change of constitution or insolvency of the Contractor/Supplier but shall in all respects and for all purposes be binding and operative until payment of all money payable to the Employer in terms thereof.

Unless a demand or claim under this guarantee is made on us in writing on or before the⁷we shall be discharged from all liabilities under this guarantee thereafter.

We, BANK lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Employer in writing.

Notwithstanding anything to the contrary contained hereinabove:

- a) The liability of the Bank under this Guarantee shall not exceed.....⁸
- b) This Guarantee shall be valid up to⁹
- c) Unless the Bank is served a written claim or demand on or before¹⁰ all rights under this guarantee shall be forfeited and the Bank shall be relieved and discharged from all liabilities under this guarantee irrespective of whether or not the original bank guarantee is returned to the Bank.

We, _____ Bank, have power to issue this Guarantee under law and the undersigned as a duly authorized person has full powers to sign this Guarantee on behalf of the Bank.

For and on behalf of
(Name of the Bank)

Dated.....

Place of Issue.....

¹ NAME AND ADDRESS OF EMPLOYER i.e Bharat Heavy Electricals Limited

² NAME AND ADDRESS OF THE VENDOR /CONTRACTOR / SUPPLIER.

³ DETAILS ABOUT THE NOTICE OF AWARD/CONTRACT REFERENCE

⁴ PROJECT/SUPPLY DETAILS

⁵ BG AMOUNT IN FIGURES AND WORDS

⁶ VALIDITY DATE

⁷ DATE OF EXPIRY OF CLAIM PERIOD

⁸ BG AMOUNT IN FIGURES AND WORDS.

⁹ VALIDITY DATE

¹⁰ DATE OF EXPIRY OF CLAIM PERIOD

Note:

1. Units are advised that expiry of claim period may be kept 2/3 months after validity date.

2. In Case of Bank Guarantees submitted by Foreign Vendors-

- a. **From Nationalized/Public Sector / Private Sector/ Foreign Banks (BG issued by Branches in India)** can be accepted subject to the condition that the Bank Guarantee should be enforceable in the town/city or at nearest branch where the Unit is located i.e. Demand can be presented at the Branch located in the town/city or at nearest branch where the Unit is located.
- b. **From Foreign Banks (wherein Foreign Vendors intend to provide BG from local branch of the Vendor country's Bank)**
 - b.1 In such cases, in the Tender Enquiry/ Contract itself, it may be clearly specified that Bank Guarantee issued by **any of the Consortium Banks only** will be accepted by BHEL. As such, Foreign Vendor needs to make necessary arrangements for issuance of Counter- Guarantee by Foreign Bank in favour of the Indian Bank (BHEL's Consortium Bank). It is advisable that all charges for issuance of Bank Guarantee/ counter- Guarantee should be borne by the Foreign Vendor. The tender stipulation should clearly specify these requirements.
 - b.2 **In case, Foreign Vendors intend to provide BG from Overseas Branch of our Consortium Bank** (e.g. if a BG is to be issued by SBI Frankfurt), the same is acceptable. However, the procedure at **sl.no. b.1** will required to be followed.
 - b.3 The BG issued may preferably be subject to Uniform Rules for Demand Guarantees (URDG) 758 (as amended from time to time). In case, of Foreign Vendors, the BG Format provided to them should clearly specify the same.
 - b.4 The BG should clearly specify that the demand or other document can be presented in electronic form.

CHECKLIST FOR DOCUMENT SUBMISSION-4011700019/08.11.2017		
S.No	Description of document - To be duly signed and filled wherever necessary	Document enclosed(Yes/No)
PART 1		
1	Techno Commercial Terms and Conditions (T&C)	
2	Pre-Qualification Requirement (PQR)	
	List of supporting documents for PQR	
	a) Copy of BIS certificate	
	b) Authorisation letter by manufacturer specific to this tender (if agent)	
	c) List of manufacturing , testing and handling facilities	
	d) List of qualified personnel	
	e) Experience - PO copy / Supply completion certificate	
	f) Copy of ISO 9001 certificate	
	g) Audited balance sheet for past three years	
3	Tech. delivery condition for pipes TDG: 07: 06 Dt. 04.05.2012.	
4	Pipe OD 1320 with attachment Drawing 3-80-468-33807 Rev 02	
5	Pipe OD 1524 with attachment Drawing 3-80-468-33808 Rev 02	
6	Spider Arrangement Drawing 4-80-468-81492 Rev :00	
7	Painting scheme QP NO:7270: QPC:12 Rev. 02 dt. 26.05.2017	
8	Internal coating spec PC: E:GF:001 Rev 00 or latest revision	
9	WPS/PQR	
10	Typical Quality plan for Pipe manufacturing	
11	Process Flowchart	
12	Supporting documents of Coating manufacturer (Clause (4) of T & C) * For other than 3 BHEL approved coating vendors	
	a) Manufacturing details / Factory license	
	b) Copy of ISO certificate	
	c) Proof of experience	
	d) Typical quality plan for coating approved by reputed customer	
	e) NACE level 2 inspectors certification	
13	UnPriced bid Format.	
14	Integrity Pact	
15	Checklist (To be filled and submitted with Technical bid without fail).	
PART 2		
1	Price bid Format.	

Note Under Point 2) - a to g are applicable for new vendors only

VENDOR'S SIGNATURE