

Technical Specification for GeM Bid No. GEM/2023/B/3372129
BHEL Enquiry No. E1433003

Enquiry items along with quantities:

It. No.	Size & Item description	Technical requirement	Nominal Qty in MT	GeM Quantity (with +10%) in MT
1	25NB (34.2 MM OD X 3.25MM THK) MS TUBES ERW PLAIN ENDS SPEC AA10152REV-07.IN LENGTH OF 4-7MTR.	25 NB (34.2 MM OD X 3.25 MM THK) MILD STEEL TUBES ERW PLAIN ENDS TO MATL SPECIFICATION AA10152 REV-07. TUBES TO BE SUPPLIED IN RANDOM LENGTH OF 4 TO 7 METERS. RUST PREVENTIVE COATING OF VARNISH TO BE APPLIED THROUGHOUT THE LENGTH. MATERIAL TEST CERTIFICATE COVERING ALL THE CHEMICAL AND MECHANICAL PROPERTIES TO BE FURNISHED ALONGWITH SUPPLY. INSPECTION AT SOURCE BY THIRD PARTY OR BHEL SHALL BE DONE AS PER ATTACHED QAP NO. QAP/TSD/FMS/10152 REV-02 ONLY. ALL OTHER DETAILS AS PER SPEC.AA10152 REV 07.	16	18
2	50NB (60.8 MM OD X 3.65 MM THK)MS TUBES ERW PLAIN ENDS SPEC AA10152REV-07.IN LENGTH OF 4-7MTR.	50 NB ERW LOW CARBON STEEL-WELDED TUBE AS PER SPEC AA10152 REV-07. TUBES TO BE SUPPLIED IN RANDOM LENGTH OF 4 TO 7 METERS. RUST PREVENTIVE COATING OF VARNISH TO BE APPLIED THROUGHOUT THE LENGTH. MATERIAL TEST CERTIFICATE COVERING ALL THE CHEMICAL AND MECHANICAL PROPERTIES TO BE FURNISHED ALONGWITH SUPPLY. INSPECTION AT SOURCE BY THIRD PARTY OR BHEL SHALL BE DONE AS PER ATTACHED QAP NO. QAP/TSD/FMS/10152 REV-02 ONLY. ALL OTHER DETAILS AS PER SPEC.AA10152 REV 07.	14	15
3	80 NB(89.5MM OD*4.05MM THK)MS TUBE ERW PLAIN ENDS SPECS AA10152REV-07. IN LENGTH OF 4-7MTR.	80 NB(89.5 MM OD X 4.05 MM THK) MILD STEEL TUBE ERW PLAIN ENDS TO MATERIAL SPECIFICATION AA10152 REV 07. TUBES TO BE SUPPLIED IN RANDOM LENGTH OF 4 TO 7 METERS. RUST PREVENTIVE COATING OF VARNISH TO BE APPLIED THROUGHOUT THE LENGTH. MATERIAL TEST CERTIFICATE COVERING ALL THE CHEMICAL AND MECHANICAL PROPERTIES TO BE FURNISHED ALONGWITH SUPPLY. INSPECTION AT SOURCE BY THIRD PARTY OR BHEL SHALL BE DONE AS PER ATTACHED QAP NO. QAP/TSD/FMS/10152 REV-02 ONLY. ALL OTHER DETAILS AS PER SPEC.AA10152 REV 07.	53	58
4	100 NB (115.0MM OD*4.50MM THK)MS TUBE ERW PLAIN ENDS SPECS AA10152REV-07. IN LENGTH OF 4-7MTR.	100 NB (115.0 MM ODX4.50 MM THK) MILD STEEL TUBE ERW PLAIN ENDS TO MATERIAL SPECIFICATION AA10152 REV 07. TUBES TO BE SUPPLIED IN RANDOM LENGTH OF 4 TO 7 METERS. RUST PREVENTIVE COATING OF VARNISH TO BE APPLIED THROUGHOUT THE LENGTH. MATERIAL TEST CERTIFICATE COVERING ALL THE CHEMICAL AND MECHANICAL PROPERTIES TO BE FURNISHED ALONGWITH SUPPLY. INSPECTION AT SOURCE BY THIRD PARTY OR BHEL SHALL BE DONE AS PER ATTACHED QAP NO. QAP/TSD/FMS/10152 REV-02 ONLY. ALL OTHER DETAILS AS PER SPEC.AA10152 REV 07.	28	31
TOTAL			111	122

Quantity variation as per below:

Item-1, Supplies quantity are to be restricted between 18 MT & 14 MT

Item-2, Supplies quantity are to be restricted between 15 MT & 13 MT

Item-3, Supplies quantity are to be restricted between 58 MT & 48 MT

Item-4, Supplies quantity are to be restricted between 31 MT & 25 MT

Note: Quantities specified in GeM Bid are inclusive of 10% tolerance. However, BHEL's regularization PO shall be placed on Nominal Quantities as mentioned above with +/-10% Quantity Variation.

Item No.	Description	GeM QTY in MT	Delivery Period
1	25NB (34.2 MMOD*3.25MM THK) MS TUBES ERW PLAIN ENDS SPEC AA10152REV-07.IN LENGTH OF 4- 7MTR.	18	75 days from GeM PO
2	50NB (60.8 MM OD X 3.65MM THK))MS TUBES ERW PLAIN ENDS SPEC AA10152REV-07.IN LENGTH OF 4- 7MTR.	15	75 days from GeM PO
3	80 NB (89.5MM OD*4.05MM THK) MS TUBE ERW PLAIN ENDS SPECS AA10152REV-07. IN LENGTH OF 4- 7MTR.	58	First Lot – 33 MT- 75 days from the date of GeM PO. Second Lot – 25 MT- 76 to 120 days from the date of GeM PO.
4	100 NB (115.0MM OD*4.50MM THK) MS TUBE ERW PLAIN ENDS SPECS AA10152REV-07. IN LENGTH OF 4- 7MTR.	31	First Lot – 9 MT- 75 days from the date of GeM PO. Second Lot – 22 MT- 76 to 120 days from the date of GeM PO.

**PRE –QUALIFICATION CRITERIA (PQC) FOR 25NB, 50NB, 80NB & 100NB ERW MS TUBES, MEDIUM(B-Class) TO
BHEL SPECIFICATION- AA10152 Rev-07**

Sr No.	Description of pre-qualification required	Vendor's response complied (yes/no)	Supporting documents Required to accept compliance
1	Manufacturer or their authorized dealer/distributor of Steel Products like- Tubes / Pipes/ Bars / Sheet / Flat.		Certificate of being manufacturer (for manufacturer). Authorized dealer/distributor have to submit valid authorization letter from original manufacturer.
2	Offers of those parties will be considered who or their Manufacturer has supplied "Steel products like –Tubes / Pipes / Bars / Sheet / Flat" of min. value of Rs 33.25.00 lakh (Rs. Thirty-Three Lakh & Twenty-Five Thousand only) during last 05 years (ending last day of month previous to the one in which tender is published).		The relevant PO copies along with Proof of Supply (Invoice copy with value / Completion certificate / TC) to be submitted with Technical offer.
3	Startups and Micro & Small Enterprises (Manufacturer of quoted item) are exempted for above clause of submission of PO and proof of supply of prior experience.		

Note-

ALL THE ABOVE POINT WISE PRE-QUALIFICATION REQUIREMENT ARE TO BE NECESSARILY ACCEPTED BY THE BIDDERS FOR THEIR OFFERS TO BE CONSIDERED FAILING WHICH OFFERS SHALL BE REJECTED.

MAKE IN INDIA format (to be filled by OeMs of the participating bidders)

BHARAT HEAVY ELECTRICALS LIMITED, BHOPAL

MATERIAL MANAGEMENT – STEEL DIVISION

For this Procurement, Government of India Public Procurement (Preference to Make in India), Order 2017 with its amendments and subsequent Orders issued by the respective nodal ministries shall be applicable even if issued after issue of this NIT but before finalization of contract/PO/WO against this NIT.

*As per the Provisions of this order, please submit **a self-certification complying with the conditions below on company letterhead duly signed by competent authority.***

I, hereby declare on behalf of M/s. that we are participating in the Enquiry No. floated by BHEL, Bhopal (MP), India and shall comply with following:

1. Public Procurement (Preference to Make in India), Order 2017 *with its amendments* and subsequent Orders issued by the respective nodal ministries shall be applicable even if issued after issue of this NIT but before finalization of contract/PO/WO against this NIT.

(a) A supplier will be treated as “**Class-I Local Suppliers**”, if the items quoted by bidder have local content equal to or more than 50%.

(b) ‘**Local Content**’ means the amount of value added in India, which shall be total value of item quoted (excluding net domestic indirect taxes) minus the value of imported content in the item (including all custom duties) as a proportion of the total value, **in percent**.

2. I hereby declare that our firm qualifies as “**Class-I Local Suppliers**”.

a. The Local Content in the items quoted under this Enquiry is Percent

b. Details of location(s) in India where this value addition shall be done, is/are as follows:

- (a)
- (b)
- (c)

(.....)

For M/s.

(Seal & Sign)



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1.0 GENERAL:

2.0 APPLICATION:

3.0 CONDITION OF DELIVERY:

The ends shall be cut cleanly and square with the axis of the tube.

4.0 COMPLIANCE WITH NATIONAL STANDARDS:

IS: 1239(part 1) – 2004: Steel Tubes, Tubular and other Wrought Steel Fittings
Gr: ERW.

5.0 DIMENSIONS AND TOLERANCES:

5.1 Sizes:

BHEL order shall clearly state the maximum outside diameter, and wall thickness of the tube.

5.2 Tolerances:

5.2.1 Thickness:

Light tubes + not limited
- 8 percent

Medium and Heavy tubes + not limited
- 10 percent

Revisions:
Corrected the Clause 11.4 in line with IS 1239 (Part 1)

APPROVED:
INTERPLANT MATERIAL RATIONALISATION
COMMITTEE – MRC(S&GPS)

Rev No.07

Amd No.

Reaffirmed

Prepared

Issued

Dt. of 1st Issue

Dt:05-01-2015

Dt:

Year:2020

HEP, Bhopal

Corp.R&D

July, 1976

1410417/2023/HEP-CRX34500

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5.2.2 Weight:

Single tube (light series)

+ 10 percent

– 8 percent

Single tube (medium and heavy series)

± 10 percent

For quantities per load of 10 tonnes, min (light series)

+ 7.5 percent

– 5 percent

For quantities per load of 10 tonnes, min (medium and heavy series)

± 7.5 percent

5.2.3 Internal Weld Fin:

Height of the internal weld fin shall not be greater than 60 percent of the specified thickness.

5.2.4 Length:

5.2.4.1 Random Length:

Tubes shall be supplied in random lengths of 4 to 7 meters, unless otherwise specified and in the line with IS: 1239, Part 1.

5.2.4.2 Exact Length:

When exact lengths are called for, the tolerances shall be + 6 mm, – 0 mm of the specified length.

6.0 MANUFACTURE:

Tubes shall be made from tested quality steel manufactured by any approved process and shall be fully killed.

Tubes shall not be manually welded.

7.0 FREEDOM FOR DEFECTS:

Tubes shall be cleanly finished and reasonably free from injurious defects. They shall be reasonably straight. The ends shall be cut cleanly and reasonably square with the axis of the tube.

8.0 CHEMICAL COMPOSITION:

The melt analysis of steel shall be as follows:

Element	Percent max.	Permissible variation over specified limit, ± max
Carbon	0.20	0.02
Manganese	1.30	0.04
Sulphur	0.040	0.005
Phosphorus	0.040	0.005

9.0 GALVANIZING:

When galvanized tubes are ordered, the Zinc coating on the tubes shall be in accordance with IS: 4736



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10.0 TEST SAMPLES:

All tubes bearing the same designation and manufactured under a single process shall be grouped together to constitute a lot. Each lot shall be sampled separately in accordance with IS: 4711

11.0 MECHANICAL PROPERTIES:

11.1 Tensile:

The tensile strength of strips cut from selected tubes, when tested in accordance with IS: 1608 shall be as follows:

Tensile strength : 320 N/mm², min.

Elongations on $5.65\sqrt{S_0}$ gauge length:

Up to and including. 25 mm NB : 12 percent, min.

Over 25 mm up to including 150 mm NB : 20 percent, min.

Note:

1. For welded tubes, the strip tensile test specimen shall not contain the weld.
2. For galvanized tubes, zinc coating may be removed by stripping prior to tensile test.

11.2 Bend Test (On tubes up to and including 50mm nominal bore):

When tested in accordance with IS: 2329, the tubes shall be capable of withstanding the bend test without showing any signs of fracture or failure.

Tubes shall be bent with the weld at 90° to the plane of bending. The tubes shall not be filled for this test.

Ungalvanized tubes shall be capable of being bent cold without cracking, through 180° around a former having a radius at the bottom of groove in the plane of bending equal to at least six times the outside diameter of the tube.

Galvanized tubes shall be capable of being bent cold without cracking of the steel, through 90° round a former having a radius at the bottom of the groove equal to at least eight times the outside diameter of the tube.

11.3 Flattening Test (On tubes above 50mm nominal bore):

Rings not less than 40mm in length, cut from the end of each selected tubes shall be flattened between parallel plates with the weld at 90° (point of maximum bending) in accordance with IS: 2328. No opening shall occur by fracture in the weld until the distance between the plates is less than 75 percent of the original outside diameter of the tube and no cracks or breaks on the metal elsewhere than in the weld shall occur until the distance between the plates is less than 60 percent of the original outside diameter.

Test rings may have the inner and outer edges rounded.

11.4 Hydraulic Test / Eddy Current Test:

Each tube shall withstand a test pressure of 5 N/mm² without showing leakage defects of any kind. The pressure shall be applied and maintained for a minimum period of 3 seconds for proof and inspection.

Note: Eddy current test may be done in place of Hydrostatic test as per the procedure in Annexure – B of IS: 1239, Part-1.

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12.0 TEST CERTIFICATES:

Three copies of test certificates shall be supplied, unless otherwise stated on the order.

In addition, to the above, the supplier shall ensure to enclose one copy of the test certificate along with their dispatch documents to facilitate quick clearance of the material.

The test certificate shall bear the following information:

AA10152: Rev. No.07: Steel Tubes – ERW/SAW

BHEL order No:

Supplier's Reference:

Name

Identification No.

Melt No.

Results of Tests:

Results of Chemical, Mechanical tests and Hydraulic/Eddy Current test.

13.0 PROTECTIVE COATING:

The tubes shall be protected with a rust preventive coating of varnish, externally throughout the length.

14.0 PACKING AND MARKING:

Each tube shall be plugged at both ends by means of tight fitting end caps.

The tubes shall be suitably packed in bundles/packages to prevent corrosion and damage during transit.

Each bundle/package shall bear the following information:

AA10152: Steel Tubes – ERW/SAW

BHEL Order No.

Consignment/Identification No.

Outside Diameter and Wall Thickness.

Supplier's Name

15.0 REFERRED STANDARDS (Latest Publications Including Amendments):

1) IS: 1608

2) IS: 2328

3) IS: 2329

4) IS: 4736

5) IS: 4711


STANDARD QUALITY PLAN

QAP NO:		QAP/TSD/FMS/10152		REV.02	Date: 24/05/2018				
CUSTOMER:		BHEL BHOPAL			VENDOR NAME:				
DESCRIPTION MATERIALS:		STEEL TUBES - ELECTRIC RESISTANCE WELDED/SUBMERGED ARC WELDED							
SPECIFICATION		AA10152		Rev. No.	07				
P.I./ENQ.NO. /P.O. NO.				Date:					
Sr. No.	Characteristics	Class	Quantum of check	Reference Document	Acceptance Norm	Type of record	Inspection By		Remarks
							Vendor / Manufacturer	TPI	
01	Visual Check	Maj	100%	AA10152	As per Spec	Test Report	100% (P)	10% (W)	
02	Dimensional Inspection (Measurement)	Maj.	As per Spec	AA10152	As per Spec	Dimensional Report	P (SAS)	W (RS)	
03	Marking On Pipes (Visual)	Maj.	100%	AA10152	As per Spec	Test Report	100% (P)	W (RS)	
04	Mill Test Certificate (Document)	Maj	100%	AA10152	As per Spec	MTC	RR	RR	
05	Mechanical properties: (Tensile, Elongation, Flattening & Bend) As applicable	Maj	As per Spec/IS: 1239 P-I	AA10152	As per Spec	Test Report	P(SAS)	W(RS)	
06	Chemical Properties (Chemical composition)	Maj	As per Spec/IS:1239 P-I	AA10152	As per Spec	Test Report	P(SAS)	W(RS)	
07	Hydro Static Test: Hydraulic Test/Eddy Current Test	Maj	100%	AA10152	(As per Spec /IS:1239 P-I)	MTC	100% (P)	RR	

Legends: Maj = Major, MTC=Mill Test Certificate, P=Perform, W=Witness, SAS= Sampling as per Specification, RR= Record Review, RS = Random Sample, Test Report = Vendor Test Report.

Prepared By

Shankar


 24/5/18
 जी. एस. नेताम / G.S. NETAM
 उप प्रबंधक (त.से.) / Dy. Manager (T.S.)
 तकनीकी सेवा विभाग / Tech. Services Deptt.
 बी.एच.ई.एल., भोपाल / BHEL, BHOPAL