

Technical Specification
BHEL Enquiry No. E1443066

Enquiry items along with quantities:

Item No.	Size & Item description	Technical requirement	Nominal Qty in KG	GeM Quantity (with +5%) in KG
1	CS FLAT NORMALISED SIZE: 40MMX60MM, BHEL SPEC AA10305 REV.08. MAT. GR: 55C8, RANDOM LENGTH OF 4-5 MTR. TOLERANCE ON WIDTH & THICKNESS + 3/-0 MM	CARBON STEEL FLAT AS PER BHEL MATERIAL SPECIFICATION AA10305 REV.08. MATERIAL GRADE: 55C8, NORMALISED. SIZE: 40MM X 60 MM, QUANTITY - 15 MT (15000 KG) AND IN RANDOM LENGTH OF 4-5 MTR. TOLERANCE ON WIDTH & THICKNESS SHOULD BE + 3 / -0 MM. FLATS SHALL BE SUPPLIED IN STRAIGHT LENGTHS WITHOUT TWISTS & BENDS AND WITH ENDS SQUARE & TRUE. MTC TO BE FURNISHED ALONG WITH SUPPLY.	15000	15750

Quantity variation as per below:

Item-1, Supplies quantity are to be restricted between 15750 KG to 15000 KG

Note: Quantities specified in GeM Bid are inclusive of +5% tolerance. However, BHEL's regularization PO shall be placed on Nominal Quantity as mentioned above with +5% Quantity Variation.

Item No.	Description	GeM Qty in KG	Delivery Period
1	CS FLAT NORMALISED SIZE: 40MM X 60 MM, BHEL SPEC AA10305 REV.08. MAT. GR: 55C8, RANDOM LENGTH OF 4-5 MTR. TOLERANCE ON WIDTH & THICKNESS + 3/-0 MM	15750	90 days from the date of GeM PO

Hydro Turbine Engineering

Pre-Qualification Requirement (PQR)

Item: Carbon steel flat of rectangular cross section 40 mm x 60 mm as per specification AA10305.

Following are the minimum eligibility requirements for considering vendors for the supply of above item.

Sl. No.	Description of Pre-Qualification Requirement	Vendor Response	
		Complied	Required documents at PQR stage in support of claim
1.	Manufacturer (mill) of steel plate or flat / their authorized representative / trader shall be eligible to take part.	Yes/No	Certificate of being manufacturer (for manufacturer) (For mills not registered with BHEL) / Valid authorization letter on mill's letterhead from mill/OEM (for authorized representatives) of carbon steel flat. Fresh authorization letter may be sought if validity is about to expire before delivery.
2.	Company shall be certified with ISO 9001-2015 or equivalent. In case of authorized representative, valid ISO certificate of manufacturer is required.	Yes/No	Valid certificate of mill / OEM to be submitted.

Note:

1. Compliance to above PQR are mandatory. In the absence of compliance of above requirement vendor PQ application is liable to be rejected.
2. BHEL has right to verify information/ confirmation furnished, by asking additional documents, proofs etc.

MAKE IN INDIA format

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)

Annexure-1
DECLARATION (To be given by Bidder)

GeM Bid No.....
Item Description:

With reference to above reference bid, we M/s..... (Bidder's Name)
confirm/declare the following.

1. Quoted Make-.....

2. We are OEM or Reseller -

3. Valid OEM Authorization certificate with OEM's Contact Details attached (In case of reseller)
- Yes / NA

4. We confirm Nil deviation from GeM bid document (NIT).

Note:

1. OEM details such as name, designation, address, e-mail Id and Phone number required to be furnished along with the technical bid. (also refer ATC clause).

2. Commercial Deviation/deviation in delivery shown separately or found hidden in the offer, will not be taken cognizance of.

(Vendor's Seal & Sign)

Annexure - E
Annexure IX

DECLARATION BY VENDOR

We declare that the following family firms or sister concern affiliates / subsidiary firms are participating in the tender No E.....:

1.0

2.0

3.0

.....

I, hereby declare on behalf of M/s and the family firms or sister concern affiliates / subsidiary firms listed above that we are not indulging in cartel formation for Enquiry No E.....

(.....)

For M/s

(Seal & Sign)



CORPORATE PURCHASING SPECIFICATION

AA10305

Rev No.08

PREFACE SHEET

HOT ROLLED / FORGED CARBON STEEL BARS, Gr: 55C8 - NORMALISED

FOR INTERNAL USE ONLY

REMOVE THIS PREFACE BEFORE ISSUE TO SUPPLIERS

Equivalent/Comparable Standards:

- 1) INDIAN : IS : 1570 (Part 2-Section 1) – 1979,
Gr: 55C8 (C55 Mn75), Normalised

Probable / Suggested Suppliers and Grades:

Refer plant vendors list

User Plants and Replaced Plant Specifications/References:

- 1) HEP, BHOPAL : PS10305
2) HPEP, HYDERABAD : HY0210299
3) HPBP, TRICHY : ----

Revisions:

E-mail dt: 08.12.05 from HY

APPROVED:

INTERPLANT MATERIAL RATIONALISATION
COMMITTEE – MRC(S&GPS)

Rev No.08

Amd No.

Reaffirmed

Prepared
HEEP, HaridwarIssued
Corp.R&DDt. of 1st Issue
August 1976

Dt:15-12-2005

Dt:

Year:2019



CORPORATE PURCHASING SPECIFICATION

AA10305

Rev No. 08

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HOT ROLLED / FORGED CARBON STEEL BARS, Gr: 55C8 - NORMALISED**1 GENERAL:**

This specification governs the quality requirements of Hot Rolled / Forged Carbon Steel Bars Gr: 55C8, Normalised.

2 APPLICATION:

General engineering purposes.

3 CONDITION OF DELIVERY:

Hot Rolled / Forged and normalised.

Note: Sizes upto 100mm in hot rolled,
>100 to 180mm in hot rolled or forged,
above 180mm in forged.

Bars shall be supplied in straight lengths without twists and bends and with the ends square and true.

4 COMPLIANCE WITH NATIONAL STANDARDS:

The material shall comply with the requirements of the following National standard and also meet the requirements of this specification.

IS : 1570, (Part 2-Sec.1) – 1979	:	Schedules for Wrought Steels- Part 2: Carbon Steels
Gr: 55C8 (C55Mn75)	:	(Unalloyed Steels) -Sec.1: Wrought products (other
Normalised.	:	than wire) with specified Chemical Composition and
	:	related Properties.

5 DIMENSIONS AND TOLERANCES:**5.1 Sizes:**

Bars shall be supplied to the dimensions specified in BHEL order.

5.1.1 Length:

Unless otherwise specified, hot rolled bars shall be supplied in 3 to 6 metres. Forged bars shall be supplied in length of 1.5 to 3 metres.

5.2 Tolerances:**5.2.1 Hot Rolled Bars:**

Tolerances on hot rolled bars shall comply with those of Grade 2 of IS: 3739: Dimensional Tolerances for Carbon and Alloy Constructional Steel products, reproduced below:

Nominal Size. mm		Tolerance, mm	
Over	Upto & Including	Permissible deviation	Out of round / square
---	25	± 0.50	0.50
25	50	± 0.75	0.75
50	80	± 1.00	1.00
80	100	± 1.25	1.25

Revisions:

E-mail dt: 08.12.05 from HY

APPROVED:

INTERPLANT MATERIAL RATIONALISATION
COMMITTEE – MRC(S&GPS)

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Corp.R&D

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August 1976

Dt:15-12-2005

Dt:

Year:2019

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Nominal Size, mm		Tolerance, mm	
Over	Upto & Including	Permissible deviation	Out of round / square
100	125	± 1.50	1.50
125	160	± 2.00	2.00
160	200	± 2.50	2.50

5.2.2 Flats:

Nominal size, mm			Tolerance, mm		
Over	Upto & Incl.	On width	On thickness		
			6 to 13 Incl.	Over 13 to 25 Incl.	Over 25 to 50 Incl.
--	50	± 1.0	± 0.5	± 0.8	± 1.0
50	100	± 2.0	± 0.5	± 1.0	± 1.5
100	150	± 3.0	--	--	± 2.0

5.2.3 Hexagonal Bars:

Nominal Size, mm		Tolerance, mm	
Over	Upto & Including	Permissible deviation	Out of hexagon
---	25	± 0.50	0.75
25	50	± 0.80	1.20
50	85	± 1.60	2.40

5.2.4 Forged Bars:

Tolerance on size for forged bars shall be + 8.0mm -0mm.

5.2.5 Straightness for Hot Rolled Bars:

Unless otherwise agreed to, the permissible deviation in straightness, shall not exceed 5mm in any 1000mm length.

6 MANUFACTURE:

The steel shall be manufactured by the open hearth, electric, basic oxygen or a combination of these processes.

Sufficient discard shall be made from each ingot to ensure freedom from piping, harmful segregation and internal and surface defects.

Material shall be manufactured from killed steel.

7 HEAT TREATMENT:


The bars shall be normalised at a temperature of 810-840°C.

8 FREEDOM FROM DEFECTS:

The bars shall be sound, straight and free from internal and surface defects, such as seams, laps and injurious imperfections. Bars shall be free from twists and bends.

9 CHEMICAL COMPOSITION:

The melt analysis of steel and the permissible variation in the composition of the material from the melt analysis shall be follows:

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Element	Melt analysis, percent,		Permissible variation, percent,
	min.	max.	
Carbon	0.50	0.60	± 0.03
Silicon	0.10	0.35	± 0.03
Manganese	0.60	0.90	± 0.04
Sulphur	---	0.035	+ 0.005
Phosphorus	---	0.035	+ 0.005

10 TEST SAMPLES:

10.1 Tensile:

Bars from the same melt and of the same size shall be grouped in batches of 40,000 kg or part thereof. One tensile test piece shall be cut from a selected bar from each batch.

For bars of sizes upto and including 40mm, the test pieces shall be machined concentrically from the bars selected for test. Alternatively the full cross-section of the bars may be tested.

For bars of sizes over 40mm, the longitudinal axes of the test pieces shall not be less than 12.5mm from the surface of the bars selected for test.

Tensile test pieces shall have a gauge length equal to $5.65 \sqrt{So}$.

10.2 Ruling section above 200mm, tensile test samples can be taken in longitudinal or transverse direction.

11 MECHANICAL PROPERTIES:

When tested in accordance with IS:1608, the test pieces shall show the following properties :

Tensile strength	:	720N/mm ² , min.
Yield strength	:	396 N/mm ² , min
Elongation on $5.65 \sqrt{So}$ gauge length	:	13 percent, min.

12 ULTRASONIC TEST:

12.1 Each bar above 100mm shall be tested ultrasonically in accordance with BHEL standard AA0850118 to ensure freedom from internal defects.

The norms of acceptance shall be category 2 of the above standard.

12.2 Optional Test:


If specified in order, each bar >40 to 100mm shall be tested ultrasonically in accordance with BHEL standard AA0850118 to ensure freedom from internal defects and the norms of acceptance shall be as per category 2.

13 TEST CERTIFICATES:

Unless otherwise stated in the order, three copies of test certificates shall be supplied.

In addition, 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:

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BHEL References:
AA10305, Rev. No. 08: HOT ROLLED / FORGED CARBON STEEL BARS, Gr: 55C8 - NORMALISED.
BHEL order No.

Supplier's References:
Name
Identification No.
Melt No.
Details of Heat treatment.

Result of Tests:
Dimensional inspection.
Results of chemical analysis, mechanical and ultrasonic tests.

14 PACKING AND MARKING:

The material shall be suitably packed in bundles - hessian wrapped-to prevent sagging, corrosion and damage during transit. A suitable clear temporary rust preventive shall be applied on all the bars.

Each bar over 50mm shall be stamped at one end with "AA10305", melt no., BHEL order No., at one end or on the end face.

Bars 50mm and below shall be bundled together and tied with wire at 3 to 4 places along the length of the bars.

A metal label shall be securely attached to each bundle and shall bear the following information:

- AA10305: HOT ROLLED / FORGED CARBON STEEL BARS, Gr: 55C8 - NORMALISED.
- BHEL Order No.
- Consignment/Identification No.
- Melt No.
- Size and Weight.
- Supplier's Name.

15 REFERRED STANDARDS (Latest publications including amendments):

1. AA0850118	4) IS:1570, Part 2,	5) IS:1608	6) IS:3739
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628340/2024/HEP-HTE40200

BHARAT HEAVY ELECTRICALS LIMITED, BHOPAL
QA-HYDRO
STANDARD QUALITY ASSURANCE PLAN FOR BAR MATERIAL

QAP NO. : QA/HT(STD)/006 Rev. 00 Dated :- 28.04.2022
SPECIFICATION : AA 10305 Rev. 08 (carbon Steel Bars/flats)
SUPPLY CONDITION : Hot rolled/forged carbon steel bars/flats, GR. 55C8-Normalized

1	2	3	4	5	6	7	8	9	10	11	12
SL. NO.	STAGE	CHARACTERISTIC	METHOD	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	P	V	W	REMARKS
1	Raw Material	Chemical	Chemical test	1 Sample / Heat	AA 10305 Rev. 08	AA 10305 Rev. 08	Mill Test Certificate	1	2	-	-
2	Heat Treatment	Normalised	Normalised	1 Sample / Heat & H.T. Batch	AA 10305 Rev. 08	AA 10305 Rev. 08	H.T. Chart	1	2	-	-
3	Final Stage	Stamping on test bar for mechanical Testing	Hard Stamp by TPIA	-do-	-do-	-do-	Stage Inspection Report	1	-	2	Test Piece duly stamped by TPIA
		i) Tensile Test	As Specified in AA 10305 Rev. 08	-do-	-do-	-do-	Supplier's Test Certificate	1	-	2	-
		ii) Yield strength	-do-	-do-	-do-	-do-	Supplier's Test Certificate	1	-	2	-
		iii) % Elongation	-do-	-do-	-do-	-do-	Supplier's Test Certificate	1	-	2	-
		Ultra Sonic Test	As Specified in AA 10305 Rev. 08	100%	AA0850118 Rev. 01	Category II	U.T. report	1	-	2	1) 100% UT to be done by vendor. 2) 15% UT to be witness by TPIA on sample basis
		Chemical Composition	Chemical test	1 sample / Heat	AA 10305 Rev. 08	AA 10305 Rev. 08	Supplier's Test Certificate	1	-	2	-
		Visual Examination	Visual	100%	-do-	Bars shall be free from surface defects, bends & twists	Supplier's Dimensional Report	1	-	2	-
4	Dispatch	Identification Marking	Hard Stamping	100%	AA 10305 Rev. 08	AA 10305 Rev. 08	1. Heat No. 2. P.O. No. 3. Spec No. 4. Size 5. Supplier's Name	1	-	2	Identification & marking shall be done on face of each bar & TPIA hard stamp to be done on both face of each flat/bar.
5	Documentation	Covering index sheet, with co-relating pages numbers to respective QAP clauses, to be prepared by vendor endorsed by TPIA.									To be reviewed & endorsed by TPIA

Note : Final Testing of Material will be done at BHEL Bhopal works before clearance of SRV.

1 = Manufacturer / Trader
2 = BHEL / BHEL's TPIA
P = Perform
V = Verification
W = Witness

Prepared: *T.R. YADAV*
Reviewed: *Anish Rathore*
Approved: *मो. राशिद*
Accepted By: *(Vendor's Representative)*

T.R. YADAV
QA/HT(STD)/006 Rev. 00
QWT DIVISION
BHEL, BHOPAL

Anish Rathore
Manager (QWT)
Quality Control
BHEL, Bhopal

मो. राशिद
क्यू. डिवी. टी. एच. लिमिटेड
बी.एच.ई.एल., भोपाल

Note 1: Compliance with QAP does not absolve the manufacturer from the responsibility of design, manufacture and delivery as per BHEL specification as to give satisfactory performance upon commissioning.
Note 2: In case of any discrepancy / interpretation, the manufacturer shall be binding.