



CORPORATE PURCHASE SPECIFICATION

AA 102 13

Rev. No. 07

PREFACE SHEET

HOT ROLLED / FORGED MEDIUM CARBON STEEL BARS, Gr : 30C8 - NORMALISED

FOR INTERNAL USE ONLY
REMOVE THIS PREFACE BEFORE ISSUE TO SUPPLIERS

Comparable Standards:

1. INDIAN

IS : 1570, Part II, Section I - 1979 (Reaffirmed 1998)
Gr: 30C8(C30) Normalised

Suggested/Probable Suppliers and Grades:

Refer Plant Vendors list

User Plant References:

1. BHOPAL	:	PS 102 13
3. HYDERABAD	:	---
4. TIRUCHY	:	BM - C 30 For Bars

Revisions :

CI 24.4.19 of MOM of MRC-S&GPS

APPROVED :

INTERPLANT MATERIAL RATIONALISATION
COMMITTEE-MRC (S&GPS)

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HOT ROLLED / FORGED MEDIUM CARBON STEEL BARS, Gr: 30 C8-NORMALISED

1.0 GENERAL

This specification governs the quality requirements of Hot Rolled / forged Carbon Steel Bars, suitable for machining.

2.0 APPLICATION

General engineering purposes.

3.0 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 with ends square and true.

4.0 COMPLIANCE WITH NATIONAL STANDARDS:

Material shall comply with the requirements of the following National standards and also meet the requirements of this specification.

IS : 1570-Part 2, Section 1-1979	:	Schedule for wrought Steels Part 2
(Reaffirmed 1998)	:	Carbon Steels (Unalloyed Steels)
Gr:30C8 (C30), Normalised	:	Sec.1: Wrought Products (other than wire) with specified Chemical composition and related properties.

5.0 DIMENSION AND TOLERANCES

5.1 Sizes:

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

5.1.1 Length:

Unless otherwise specified, hot rolled bars shall be supplied in lengths 3 to 6 metres and forged bars shall be supplied in lengths of 1.5 to 3 metres

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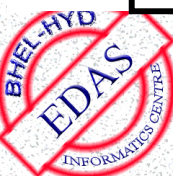
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Year :

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SEP., 1976



**5.2 Tolerances:****5.2.1 For Forged bars:**

The tolerances shall be + 8 mm - 0mm.

5.2.2 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:**5.2.2.1 Round and Square Bars:**

Nominal Size mm		Tolerances, mm	
Over	Up to & 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
> 100		± 1.6% of diameter or width of side	75 % of total tolerance (+ and -)

5.2.2 Straightness:

Unless otherwise agreed to the permissible deviation in straightness shall not exceed 5 mm in any 1 metre length.

6.0 MANUFACTURE

Material shall be manufactured from fully killed steel.

7.0 HEAT TREATMENT

The bars shall be normalised at a temperature of 860-890 °C.

8.0 FREEDOM FROM DEFECTS

The bars shall be sound, straight and free from internal and surface defects, such as seams, laps, cracks or any other defects which may impair the end use.

Bars shall be free from twists and bends.



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9.0 CHEMICAL COMPOSITION

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

Element	Melt analysis, percent,		Permissible variation, percent,
	Min.	Max.	
Carbon	0.25	0.35	± 0.02
Silicon	0.10	0.35	± 0.03
Manganese	0.60	0.90	± 0.04
Sulphur	---	0.035	+ 0.005
Phosphorus	---	0.035	+ 0.005

10.0 TEST SAMPLES :

10.1 One sample shall be taken from each melt for chemical analysis.

10.2 One sample shall be taken from each heat treatment batch for testing of mechanical properties. Test pieces for mechanical tests shall be taken in the longitudinal direction of the piece.

For ruling section up to and including 40mm, the test piece shall be machined coaxially from the test bars. For ruling section above 40mm the longitudinal axis shall be atleast 12.5 mm from surface of the test bars.

Test methods for determining mechanical properties shall be as per IS:1608 (For tensile test).

10.3 For ruling section above 200mm, tensile test samples can be taken in tangential or transverse direction.

11.0 MECHANICAL PROPERTIES (IN NORMALISED CONDITION):

Mechanical properties of the material shall be as follows:

Tensile strength	: 500 - 600 N/mm ²
Yield strength	: 275 N/mm ² , min
% of elongation	: 21%, min.

12.0 ULTRASONIC TEST :

Each bar above 100 mm shall be tested ultrasonically in accordance with BHEL standard AA 085 01 18 to ensure freedom from internal defects.

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

RESTRICTED USE



**13.0 TEST CERTIFICATES**

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

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

The test certificate shall bear the following information :

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BHEL order No,

Supplier's Reference :

Name

Identification No.

Melt No.

Details of heat treatment.

Results of Tests :

Results of Dimensional inspection.

Results of chemical analysis, mechanical tests & Ultrasonic test.

14.0 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 of 50 mm & above shall be stamped with AA 102 13, melt no, BHEL order no, at one end or on the end face.

Bars below 50mm 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 :

AA 102 13 : Hot Rolled / Forged Medium Carbon Steel Bars, 30C8-Normalised.

BHEL Order No.

Consignment/Identification No.

Melt No.

Size and Weight.

Supplier's Name.

15.0 REFERRED STANDARDS (Latest Publications Including amendments):

1. IS : 1570 Part II 2. I S:1608 3. IS : 3739 4. AA 085 01 18