



FERRO NIOBIUM

1. SCOPE

This specification governs the quality of Ferro Niobium with the following requirements.

2. APPLICATION

The material shall be used as alloying addition for the melting and refining of special alloy steel.

3. CONDITION OF DELIVERY

The size should be in the range of 10-50 mm. However oversized material should not exceed 10% by weight and undersize material should not exceed 5% by weight.

4. COMPLIANCE WITH NATIONAL STANDARDS

The specification in general is based on Indian standards specification IS 3014-1993 (Reaffirmed 1999), Grade: FeNb65.

5. FREEDOM FROM CONTAMINATION

The material shall be free from extraneous contamination such as slag.

6. CHEMICAL COMPOSTION

The material shall conform to the following chemical composition when it is analyzed in accordance with any national/ international method. The sampling shall be done as per IS: 1472.

ELEMENT	% MIN	%MAX
Niobium	60	70
Tantalum	-	0.5
Aluminium	-	2.0
Silicon	-	4.0
Titanium	-	1.0
Carbon	-	0.3
Phosphorus	-	0.1
Sulphur	-	0.1
Tin	-	0.05
Iron	-	Balance

RMI	S.N.GHOSH	<i>[Signature]</i>	WORKED BY	M.K.SAHU	<i>[Signature]</i>
MPIC	SHANTANU	<i>[Signature]</i>	CHECKED BY	RANJAN	<i>[Signature]</i>
CHAIRMAN CPSC	R.PARTHASARATHY	<i>[Signature]</i> 180810	SECRETARY PPSC	Dr.M.S.RAWAT	<i>[Signature]</i> 18/08/10
APPROVED : PLANT STANDARDS COMMITTEE					
			PREPARED By: SMS TECH	ISSUED : Steel Melting Shop	DATE :18/08/10

COPYRIGHT AND CONFIDENTIAL
The information on this documents is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company



PLANT PURCHASE SPECIFICATION

FF 05064 Rev 02

(CFFP - HARDWAR)

Page 2 of 3

7. INSPECTION

- CFFP reserves the right to witness the testing of the material at supplier works either by CFFP or by CFFP authorized representative (including any Third Party Inspection) and therefore the supplier shall notify the readiness of the material in advance.
- CFFP may, at its discretion, test the material after receipt and acceptance of the material will be based on the CFFP's test results.
- For any deviation from this specification prior approval shall be taken by the supplier.
- For result of analysis and properties of material the decision of CFFP shall be final and binding on the supplier.

8. TEST CERTIFICATES

One Original and three copies of Test Certificate from the **Manufacturer** containing the following information **along with test result of clause 3,5 and the chemical composition as per clause 6** should be provided.

Manufacturer's Name
 Name of the material
 Batch/Lot No.
 Quantity.

Note:

- A manufacturer supplying directly to BHEL should include BHEL's P.O. No. and Challan No. also in the TC.
- Any other supplier should provide a covering letter along with original Manufacturer's TC as above mentioning BHEL's P.O. No. and Challan No.

9. PACKING AND MARKING

The material shall be packed & sealed in **Tamper Proof Metallic drum** such as to prevent loss / deterioration in quality during handling, transport and storage. It should be in the manufacturer's packing. Each package should be marked with the following details.

Name of the material
 Manufacturer's Name / Trade mark
 Batch/Lot No.
 Net weight.

10. REFERRED STANDARDS

IS: 3014 -1993, IS: 1472.

COPYRIGHT AND CONFIDENTIAL
 The information on this document is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company.

WORKED BY	M.K.SAHU		18/8/10
CHECKED BY	RANJAN		18/8/10

Handwritten signature and date:
 4/10/2010
 18/08/10



PLANT PURCHASE SPECIFICATION

FF 05064 Rev 02

(CFFP - HARDWAR)

Page 3 of 3

REVISION RECORD SHEET

SN	Revision No.	Revision date	Nature of Changes
01.	01	07.09.2009	-Clauses 8 and 9 revised incorporating requirement of manufacturer's packing and Test certificate.
02.	02	18.08.2010	<ul style="list-style-type: none">- Clause 3: Size Range redefined.- Clause 4: The specification was made in the year 2004 based on IS 3014-1965 Grade 02 FeNb 55. This has been changed to IS 3014-1993 Grade FeNb65.- Clause 6: Chemical composition redefined based on IS 3014-1993. Sampling as per IS1472.- Clause 8: Clause 5 included in T.C.- Clause 9: Tamper Proof Metallic drum incorporated.

CONFIDENTIAL

The information on this documents is the property of Bharat Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company

Handwritten signature and date: 18/8/10

WORKED BY	M.K.SAHU	<i>(Signature)</i>	18/8/10
CHECKED BY	RANJAN	<i>(Signature)</i>	18/8/10