



ISO 9001:2000
& 14001:2004
NAVARATNA
COMPANY

सामग्री प्रबन्धन (क्रय विभाग)
MATERIAL MANAGEMENT (PURCHASE)
सेन्ट्रल फाउन्ड्री फोर्ज प्लांट, भारत हेवी इलेक्ट्रिकल्स लिमिटेड
CENTRAL FOUNDRY FORGE PLANT, BHEL HARDWAR
रानीपुर, हरिद्वार (भारत)
RANIPUR, HARIDWAR (INDIA) – 249403
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Ref: FF/PPX/EOI/05
Dt. 01/06/2009

Sub: **EXPRESSION OF INTEREST FOR SUPPLY OF GRAPHITE
ELECTRODES OF 200-500 MM DIA FOR EAF.**

Dear Sir,

CFFP/BHEL has huge requirement for following item and thus desires Expression of Interest from interested vendors for supply of this item.

EOI NO.	Description	Due date
FF/PPX/EOI/05	Graphite Electrodes of 200-50 mm Dia for EAF.	30/06/2009 2.00 P.M.




You are requested to please submit your interest along with Supplier Registration Form (which can be downloaded from our web site www.bhel.com).








Kindly note that supplier registration form is mandatory requirement for processing your application against this Expression of Interest .

Thanking you.

(Rohit Varshney)
Engineer (Pur)

संस्थान क्रय विनिर्देश (सी.एफ.एफ.पी. - हरिद्वार) CONTROLLED COPY PLANT PURCHASE SPECIFICATION (CFFP - HARDWARE)	FF 05031 Rev 01
	पृष्ठ का Page 1 of 4
GRAPHITE ELECTRODES	
1. SCOPE This specification governs the quality requirements of Graphite Electrodes and Nipples used in electric Arc-Furnaces.	
2. APPLICATION Graphite electrodes are essential consumable for electric Arc.- furnaces. These are used for melting steel scrap and for increasing and maintaining temperature of liquid scrap during manufacturing of steel.	
3. COMPLIANCE WITH NATIONAL STANDARD The material shall conform to Indian standard specification IS : 9050-1979 for 'Nominal' dimensions of cylindrical machined graphite electrodes with threaded sockets and connecting pins/Nipples for use in electric Arc furnaces. All tolerances on diameters and lengths shall be conforming to above specification.	
4. INSPECTION AT SUPPLIER'S WORKS <ul style="list-style-type: none"> CFFP/BHEL reserves the right to inspect the material after / before despatch. Therefore the supplier should intimate in advance enclosing a copy of test certificate of the material offered for inspection. Final inspection will be done at CFFP. For any deviation from this specification prior approval of CFFP shall be taken. For results of analysis and properties of material the decision of CFFP shall be final and binding on the supplier. If the material is not found suitable according to the requirements, it shall be replaced free of cost by the supplier. 	
5. PROPERTIES Graphite electrodes shall have following properties:	
QM MPIC QM(HEAD) AGREED DEPTT	N.K.SAHU K.B.SOOD K.K.GUPTA NAME SIGNATURE & DATE
NAME SIGNATURE & DATE	NAME SIGNATURE & DATE
APPROVED : PLANT STANDARDS COMMITTEE	
PREPARED : SMS	ISSUED : SMS DATE : 11-02-06

	संस्थान क्रय विनिर्देश (सी.एफ.एफ.पी - हरिद्वार) CONTROLLED COPY PLANT PURCHASE SPECIFICATION (CFFP - HARDWAR)				FF 05031 Rev 01		
					पृष्ठ का Page 2 of 4		
This information on this document is the property of the Electrical Limited. It must not be used directly or indirectly in any way without the written permission of the Electrical Limited.	PROPERTY	NOMINAL DIA (mm) (175-300)		NOMINAL DIA (mm) (350)		NOMINAL DIA (mm) (400 & 500)	
		CLASS HC 175-300	CLASS HPC 175-300	CLASS HC-350	CLASS HPC-350	CLASS HC-400	CLASS HPC-400
	5.1 BULK DENSITY (G/CC)	1.58-1.63	1.65-1.71	1.58-1.63	1.66-1.73	1.58-1.63	1.66-1.73
	5.2 MAX-GRAIN SIZE (mm)	1.68	1.68	6.70	6.70	6.70	12.70
	5.3 ELECTRICAL Resistivity (01m-Cmx10 ⁻⁵)	70-90	55-80	70-90	55-80	75-95	60-85
	5.4 FLEXURAL STRENGTH (Kgs/cm ²)	100-130	140-180	80-100	110-180	70-90	115-180
	5.5 COMPRESSIVE Strength (Kgs/cm ²)	180-230	270-340	140-180	200-270	125-160	205-325
	5.6 TENSILE STRENGTH (Kgs/cm ²)	60-80	85-110	50-60	65-90	42-54	70-110
	5.7 COEFF-OF THERMAL EXPANSION (cm/cm/Ocx 10-7)	10-13	11-15	10-13	11-15	10-13	11-15
	5.8 YOUNGS MODULUS (Kg/mm ²)	800-900	1150-1225	650-750	1100-1185	600-700	1025-1300
	5.9 APPARENT POROSITY(%)	25-27	21-23	26-28	22-24	26-28	22-24
	5.10 ASH CONTENT (%)	0.20	0.20	0.20	0.20	0.20	0.20
5.11 CARBON (%)	99.80 Min.	99.80 Min.	99.80 Min.	99.80 Min.	99.80 Min.	99.80 Min.	
5.12	Diameters and lengths of machined and threaded graphite electrodes.						
	NOMINAL DIAMETER (MM)	DIAMETER TOLERANCES (MM) MAX MIN		NOMINAL LENGTHS (MM)	WEIGHT RANGE (KGS)		
	200 (HC175-300)	205	200	1500-1800	79-95		
	300 (HC175-300)	307	302	1500-1800	172-214		
	350 (HC 350)	351	352	1500-1800	230-293		
	400 (HC 400)	408	403	1500-1800	300-384		
	500 (HPC 400)	511	505	1500-1800	498-638		
INVENTOR SIGN & DATE	Date: 11.02.06				निर्माणकर्ता WORKED BY RAJIV KUMAR		
					जाँचकर्ता CHECKED BY L.K.KHANDELWAL		

Page of pages SIGN & DATE		संस्थान क्रय विनिर्देश (सी.एफ.एफ.पी - हरिद्वार) CONTROLLED COPY PLANT PURCHASE SPECIFICATION (CFFP - HARDWARE)	FF 05031 Rev 01												
SUPERVISOR'S INVENTORY NO.	पृष्ठ का Page 3 of 4														
सभी को काम में शामिल करें	5.13 NOMINAL DIA (mm) GRAPHITE ELECTRODE (CLASS) CORRESPONDING NIPPLE (CLASS) 4 TPI														
	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%; text-align: center;">175-300</td> <td style="width: 33%; text-align: center;">HC 175-300</td> <td style="width: 33%; text-align: center;">HPC 175-300</td> </tr> <tr> <td style="text-align: center;">350</td> <td style="text-align: center;">HC-350</td> <td style="text-align: center;">HPC-350</td> </tr> <tr> <td style="text-align: center;">400</td> <td style="text-align: center;">HC-400</td> <td style="text-align: center;">HPC-400</td> </tr> <tr> <td style="text-align: center;">500</td> <td style="text-align: center;">HPC-PC-400</td> <td style="text-align: center;">HPC-PC-400</td> </tr> </table>			175-300	HC 175-300	HPC 175-300	350	HC-350	HPC-350	400	HC-400	HPC-400	500	HPC-PC-400	HPC-PC-400
175-300	HC 175-300	HPC 175-300													
350	HC-350	HPC-350													
400	HC-400	HPC-400													
500	HPC-PC-400	HPC-PC-400													
	Characteristics of nipple shall conform to IS-9050-1979.														
COPYRIGHT AND CONFIDENTIAL This document is the property of Bharat Heavy Electricals Limited. It is not to be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without prior written permission of the company.	6. CLEARANCE FOR DELIVERY Objections shall be raised in case the material does not confirm to the condition specified in specification whereby the deviations interfere to significant extent with use of the material. The clearance does not release the supplier from the responsibility for non-conformance determined later on.														
	7. TEST CERTIFICATE The supplier shall furnish 4 copies of test certificates unless otherwise specified in purchase order. The test certificate must contain the following and must reach BHEL before or along with the material.														
	7.1 BHEL Reference 7.1.1 Material Specification. 7.1.2 Purchase Order No. 7.2 Supplier Reference 7.2.1 Supplier's name or emblem. 7.2.2 Material Batch No. and Serial No. 7.2.3 Test Results of analysis as per clause 5.														
	8. PACKING AND MARKING 8.1. The graphite electrodes shall be suitably packed in wooden crates/pallets, the end of graphite electrodes shall be covered with corrugated boards to protect the threads and to avoid damage during transit. Nipples should be packed in thick corrugated boxes. 8.2. The following shall be marked on the container. 8.2.1. Manufacturer's name. 8.2.2. Batch/Lot No. 8.2.3. Trade mark, if any.														
सभी को काम में शामिल करें	Date: 11-02-06														
	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%; border: 1px solid black;"> निर्माणकर्ता WORKED BY </td> <td style="width: 33%; border: 1px solid black;"> RAJIV KUMAR </td> <td style="width: 33%; border: 1px solid black;">  </td> </tr> <tr> <td style="border: 1px solid black;"> जाँचकर्ता CHECKED BY </td> <td style="border: 1px solid black;"> L.K.KHANDELWAL </td> <td style="border: 1px solid black;">  </td> </tr> </table>			निर्माणकर्ता WORKED BY	RAJIV KUMAR		जाँचकर्ता CHECKED BY	L.K.KHANDELWAL							
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REVISION RECORD SHEET

S. No.	Revision No.	Revision date	Nature of Changes
01.	01	11.02.06	<p>"CLASS HC 300" and "HPC 300" in Clause 5 changed to "CLASS HC 175-300" and "CLASS HPC 175-300".</p> <p>Clause 5.12 and 5.13 modified.</p> <p>CLAUSE 4, 6 and 7 modified.</p>

ISSUED:	SMS TECHNOLOGY	WORKED	
REVISION	01	DATE: 11.02.06	
AGREED	PLANT PUR. SPEC.COMMTTEE	APPROVED	P.P.S.C