

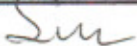






Date of receipt SIGN & DATE		संस्थान क्रय विनिर्देश (सी.एफ.एफ.पी - हरिद्वार)				<b>FF 05031</b> <b>Rev 01</b>		
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<b>PLANT PURCHASE SPECIFICATION</b> (CFFP - HARDWAR)								
SUPERSEDES INVENTORY	PROPERTY	NOMINAL DIA (mm) (175-300)		NOMINAL DIA (mm) (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	CLASS HPC PC-400
COPYRIGHT AND CONFIDENTIAL This information on this documents is the property of Heavy Electrical Limited. It must not be used directly or indirectly in any way detrimental to the interest of the company	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	1.63-1.73
	5.2 MAX-GRAIN SIZE (mm)	1.68	1.68	6.70	6.70	6.70	12.70	12.70
	5.3 ELECTRICAL Resistivity ( $0.1m-Cmx10^{-5}$ )	70-90	55-80	70-90	55-80	75-95	60-85	40-65
	5.4 FLEXURAL STRENGTH (Kgs/cm <sup>2</sup> )	100-130	140-180	80-100	110-180	70-90	115-180	100-135
	5.5 COMPRESSIVE Strength (Kgs/cm <sup>2</sup> )	180-230	270-340	140-180	200-270	125-160	205-325	180-245
	5.6 TENSILE STRENGTH (Kgs/cm <sup>2</sup> )	60-80	85-110	50-60	65-90	42-54	70-110	60-80
	5.7 COEFF-OF THERMAL EXPANSION (cm/cm/Ocx 10-7)	10-13	11-15	10-13	11-15	10-13	11-15	4-8
	5.8 YOUNGS MODULUS (Kg/mm <sup>2</sup> )	800-900	1150-1225	650-750	1100-1185	600-700	1025-1300	900-1025
	5.9 APPARENT POROSITY(%)	25-27	21-23	26-28	22-24	26-28	22-24	22-24
	5.10 ASH CONTENT (%)	0.20	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.	99.80 Min.
	5.12 Diameters and lengths of machined and threaded graphite electrodes.							
स्वयंसेवक एवं मोनीटर इस प्रवेश में ही यह सुनिश्चित है कि प्रत्येक प्रवेश में निम्नलिखित के बिना प्रवेश नहीं किया जाये।	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			
अन्तर्गत पर SIGN & DATE								
इसकी प्रती रचना INVENTOR	Date: 11.02.06			निर्माणकर्ता WORKED BY	RAJIV KUMAR			
				जाँचकर्ता CHECKED BY	L.K.KHANDELWAL			





संस्थान क्रय विनिर्देश (सी.एफ.एफ.पी - हरिद्वार)

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PLANT PURCHASE SPECIFICATION

(CFFP - HARDWAR)

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5.13	NOMINAL DIA (mm)	GRAPHITE ELECTRODE (CLASS)	CORRESPONDING NIPPLE (CLASS) 4 TPI
	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.

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.

Date: 11.02.06

निर्माणाकर्ता  
WORKED BY

RAJIV KUMAR

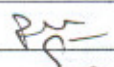
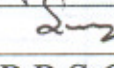
जांचकर्ता  
CHECKED BY

L.K.KHANDELWAL

BHEL	PLANT PURCHASE SPECIFICATION	FF 05031
	C.F.F.P. HARDWAR	PAGE: 4 OF 4

### 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	CHECKED 
AGREED	PLANT PUR. SPEC.COMMTTEE	APPROVED	P.P.S.C