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SUPERSEDES INVENTORY NO.

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

CONTROLLED CO

Rev 01 पुष्ठ

FF 05031

का Page 1 of

PURCHASE SPECIFICATION PLANT (CFFP - HARDWAR)

GRAPHITE ELECTRODES

SCOPE 1.

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.

COMPLIANCE WITH NATIONAL STANDARD 3.

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.

INSPECTION AT SUPPLIER'S WORKS

- 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.

PROPERTIES

Graphite electrodes shall have following properties:

with get then INVENTORY NO.				APPROVED : PLANT STANDARDS COMMITTEE			
	AGREED DEPTT	NAME	SIGNATURE & DATE	ne क्षेत्रक : संस्थान मानक समिति			
enter all	QM(HEAD)	K.K.GUPTA	guyapar	जांचकर्ता	CHECKED BY	L.K.KHANDELWAL	Suy
distante -	MPIC	K.B.SOOD		निर्माणकर्ता	WORKED BY	RAJIV KUMAR	101
SIGN &	OM	N.K.SAHU	me			म्प NAME	Reis of sensor SIGNATURE & DA

FF 05031 संस्थान क्रय विनिर्देश (सी.एफ.एफ.पी - हरिद्वार) भी एच ई एव Sign & DATE Rev 01 CONTROLLED CO. पुष्ठ PLANT PURCHASE SPECIFICATION Page 2 of 4 (CFFP - HARDWAR) NOMINAL DIA (mm) PROPERTY NOMINAL DIA (mm) NOMINAL DIA (mm) SUPERSEDES (175-300)(400 & 500) (350)CLASS CLASS CLASS CLASS CLASS CLASS CLASS HPC HC 175-300 HPC 175-300 HC-350 HC-400 HPC-400 PC-400 HPC-350 de la la de la del 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 artegen 5.2 MAX-GRAIN SIZE (mm) 1.68 1.68 6.70 6.70 6.70 12.70 12.70 5.3 ELECTRICAL Resistivity 70-90 60-85 55-80 70-90 55-80 75-95 40-65 TAL rat Heavy (O1m-Cmx10⁻⁵) 5.4 FLEXURAL STRENGTH 100-130 140-180 80-100 70-90 100-135 110-180 115-180 information on this documents is the property ical. Limited It must not be used directly or indivo-detrimental to the interest. of the company (Kgs/cm²) AND CONFIDE 5.5 COMPRESSIVE Strength 180-230 180-245 270-340 140-180 200-270 125-160 205-325 (Kgs/cm²) 5.6 TENSILE STRENGTH 60-80 85-110 50-60 65-90 42-54 70-110 60-80 (Kgs/cm²) COPYRIGHT 5.7 COEFF-OF THERMAL 10-13 11-15 10-13 11-15 10-13 11-15 4-8 EXPANSION (cm/cm/Ocx 10-7) É 5.8 YOUNGS MODULUS 800-900 1150-1225 650-750 1100-1185 600-700 1025-1300 900-1025 (Kg/mm²) 5.9 APPARENT MAG POROSITY(%) 25-27 21-23 26-28 22-24 26-28 22-24 22-24 1964 Total di modit il 5.10 ASH CONTENT (%) 0.20 0.20 0.20 0.20 0.20 0.20 0.20 है कूषणा भारत है ्राज्या की कुल्बी के किए में हर्जनशरक हो ग 99.80 Min. 99.80 Min. 5.11 CARBON (%) 99.80 Min. 99.80 Min. 99.80 Min. 99.80 Min. 99.80 Min. 5.12 Diameters and lengths of machinesd and threaded graphite electrodes. NOMINAL DIAMETER NOMINAL WEIGHT DIAMETER TOLERANCES LENGTHS RANGE (MM) (MM) (MM) (KGS) MAX MIN EE 200 (HC175-300) 205 200 1500-1800 79-95 BR A Pet 300 (HC175-300) 307 302 1500-1800 172-214 350 (HC 350) 351 352 1500-1800 230-293 A. 400 (HC 400) 408 403 1500-1800 300-384 500 (HPC 400) 505 511 1500-1800 498-638 PATE 医母 NDIS निर्माणकर्ता RAJIV KUMAR need git sten INVENTOR WORKED BY Date: 11.02.06 L.K.KHANDELWAL CHECKED BY

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		TLANT	(CFFP - HAI		ATTOM	01		
SUPERSEDES INVENTORY NO	5.13	N	OMINAL DIA (mm)	GRAPHITE ELEC (CLASS)		ONDING NIPPL LASS) 4 TPI		
			175- 300 350 400 500	HC 175- HC-350 HC-400 HPC-PC		HPC 175-300 HPC-350 HPC-400 HPC-PC-400		
तामाते पूर्व तंथना अधिकशिय करात	Characteristics of	nipple shall conform	m to IS-9050-1979.		A 100 100 100 100 100 100 100 100 100 10			
FAND. NFIDENTIAL documents is the property of Blannt Heavy not be used directly or indirectly in any way to the interest 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							
COPYRIGHT AND. The information on this documents is Bectrical Limited it must not be used detrimental to the interest.	7.1 BHI 7.1.1 Ma 7.1.2 Pu 7.2 Sup 7.2.1 Sup 7.2.2 Ma 7.2.3 Tes 8. PACKIN 8.1. Ti	EL Reference aterial Specificate order Northease Order Ord	ation. lo. ce or emblem. o. and Serial No. nalysis as per clause KING ctrodes shall be suides shall the covere	5. tably packed in wo	ooden crates/pallets boards to protect the	s, the end of ne threads and		
स्प्रसामिष्ठार एवं गीपनीयर्फ स्त प्रतेष ने के वहं पूष्ण जात के हर्तनाल के जनक के प्रति । वन्ते हे कि ने प्रतिकार से न किया गए ।	8.2. TI 8.2.1. 8.2.2.				eked in thick corru	gated boxes.		
P. E	Date: 11.02.	06		निर्माणकर्ता WORKED BY जोबकर्ता	RAJIV KUMAR	Rose II		

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	PLANT PURCHASE SPECIFICTION	FF 05031	
BHEL	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	"CLASS HC 300" and "HPC 300" in Clause 5 changed to "CLASS HC 175-300" and
			"CLASS HPC 175-
			300".
			Clause 5.12 and 5.13 modified.
		IN No. 1 CONAL NO.	CLAUSE 4, 6 and 7 modified.
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REVISION	01	DATE: 11.02.06	CHECKED	2-2	
AGREED	PLANT	PUR. SPEC.COMMTTEE	APPROVED	P.P.S.C	