



河北威碳

HEI BEI WELL CARBON

河北威碳进出口贸易有限公司
Hebei Well Carbon Imp and Exp Trading Co.,Ltd

邮编: 056000
座机: 0086-0310-3057555
传真: 0086-0310-3057555
手机: 0086 15933309942
WhatsApp/Wechat: 0086 15933309942
邮箱: vivien@well-carbon.com
网站: www.well-carbon.com
地址: 河北省邯郸市IFC金融大厦19楼1999号

Zip Code: 056000
Tel: 0086-0310-3057555
Fax: 0086-0310-3057555
Mob: 0086 15933309942
WhatsApp/Wechat: 0086 15933309942
Email: vivien@well-carbon.com
Web: www.well-carbon.com
Address: Room 1999, Floor 19, IFC International Financial Building, Handan, Hebei, PRC.



河北威碳进出口贸易有限公司
Hebei Well Carbon Imp and Exp Trading Co.,Ltd

河北金聚新材料有限公司 (生产基地)
Hebei Jinju New Material Co.,Ltd(Production Base)

认证 CERTIFICATIONS

拥有一种高度，方能极目远眺，公司现已取得质量、环境、职业健康安全三标管理体系认证书，顺应了公司跨越式发展、精细化管理的要求，紧密结合了公司开拓创新、规范管理的需要。资质与荣誉，是实力的见证，更是社会对公司品质的认可与赞许……

The company has gotten quality certification, environment certification, occupational health and safety certification, in line with the requirement of company's great-leap-forward development and elaborate management, in close connection with the company's philosophy, pioneering and innovative, standardized management. Qualification and honor are the witness of strength, they are also the community's recognition and praise to our company quality.....



河北威碳进出口贸易有限公司 Hebei Well Carbon Imp and Exp Trading Co.,Ltd

河北威碳进出口贸易有限公司成立于2017年，注册资金300万元，位于河北省邯郸市“中国北方碳素基地”，交通十分便利，是集生产贸易和商务咨询服务为一体的大型综合型企业，公司旗下的合作企业已达30余家，员工200余人，年综合生产能力达30000吨，产品畅销全国二十多个省区，远销东南亚/中东和欧美等多个国家和地区。

公司目前主营产品有：普通功率石墨电极（75mm-1200mm）、高功率石墨电极（200mm-700mm）、超高功率石墨电极（300mm-700mm）、煅后石油焦、石墨化石油焦、增碳剂、石墨制品及制冷配件、钢制配件等多种产品。

企业自成立至今，在保证质量的基础上，注重产品多样化发展，从客户需求的角度出发，不断创新，不断发展，现已发展为能提供多领域所需的不同品类的产品和服务的综合型企业。

我公司于2017年先后取得ISO9001质量、环境、管理体系认证等相关证书。随着科技的不断进步，我公司加快技术创新，强化科学管理，奉行“用户至上，诚信为本”的宗旨，不断扩大市场占有率。把企业打造成产品质量过硬，售后服务完善的国际品牌。

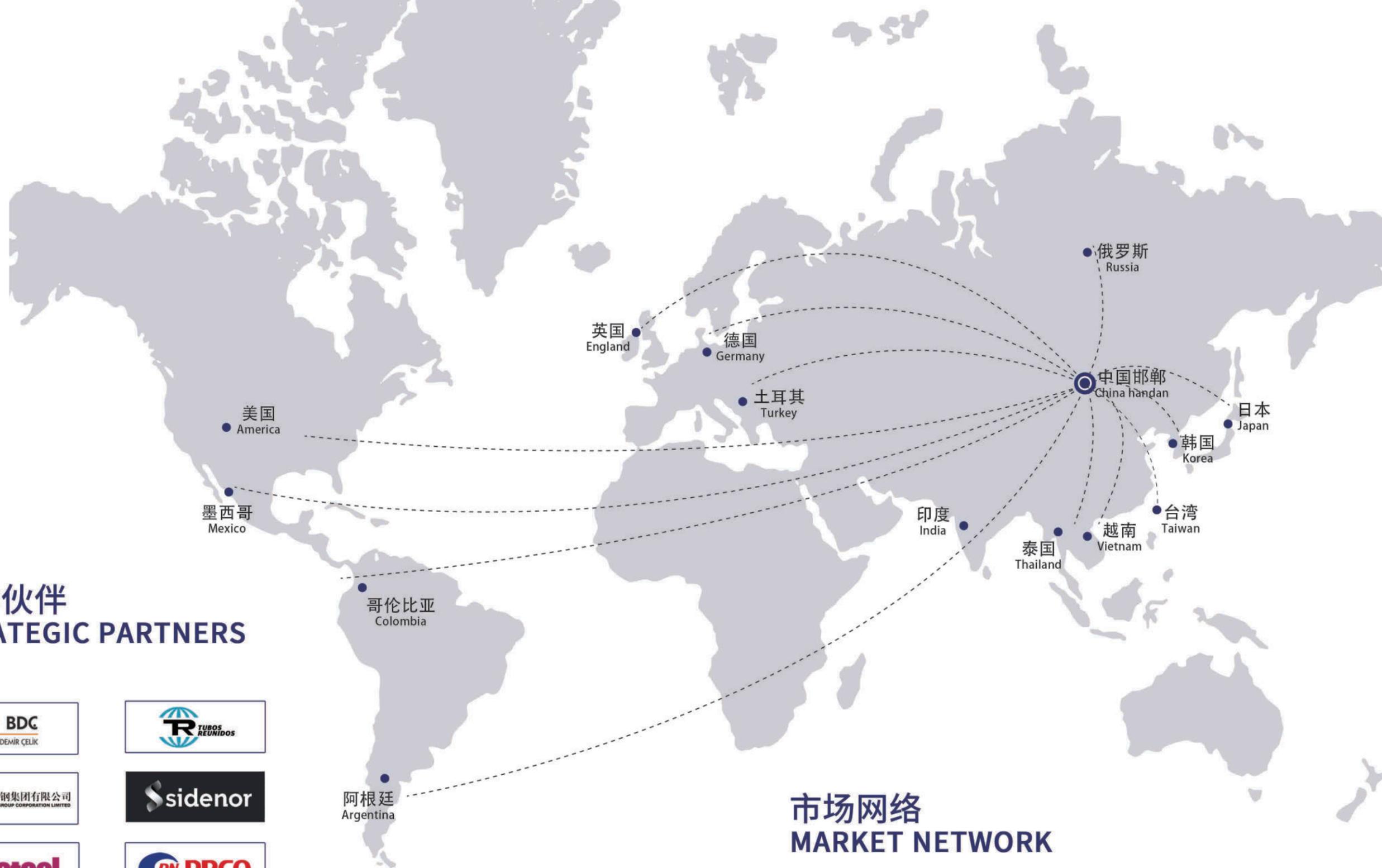
COMPANY PROFILE

Hebei Well Carbon Import and Export Trading Co., Ltd was established in 2017, the registered capital of 3 million yuan, is located in Handan City, Hebei Province, "North China Carbon Base", and the transportation is very convenient. It is a large-scale comprehensive enterprise integrate production, trade and business consulting services. Under the company's cooperative enterprises have reached more than 30 and more than 200 employees. Annual comprehensive production capacity of 30,000 tons, products sold in more than 20 provinces and regions, exported to Southeast Asia, Middle East, Europe, the United States and other countries.

The company's main products: Ordinary Power Graphite Electrode(75mm-1200mm), High Power Graphite Electrode(200mm-700mm), Ultra High-power Graphite Electrode (300mm-700mm), Calcined Petroleum Coke, Graphitized Petroleum Coke, Recarburizer, Graphite Products, Refrigeration Fitting, Steel Parts and other products.

Since the establishment of the enterprise, we pay attention to the development of products diversification on the basis of production assurance. We insist on continuous innovation and development from the perspective of customer needs. It has developed into a comprehensive enterprise that can provide different types of products and services needed in many fields.

Our company has obtained ISO9001 quality, environment, management system certification and other related certificates in 2017. With the continuous progress of technology, our company speeds up technological innovation, strengthens scientific management. Pursues the purpose of "customer first, integrity-based", and continuously expands the market share. To build the enterprise into an international brand with excellent product quality and perfect after-sales service.



合作伙伴 STRATEGIC PARTNERS



市场网络 MARKET NETWORK

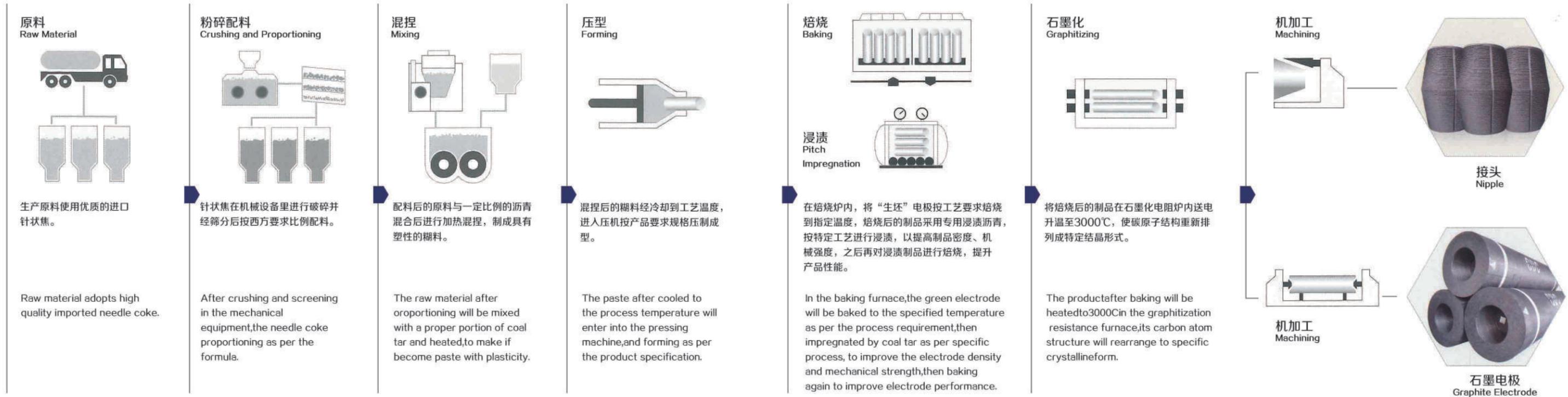
用全球化的市场战略，信息化的营销体系，高效、准确的市场反应，以此提高市场地位。无论何时何地，公司始终秉承优质服务观，主动与客户沟通，用心交流，快速反应，知客户所需，急客户所急，为客户提供超值服务。立足中国，服务世界！

With the globalization of the market strategy, information-based marketing system, high efficient and accurate market response, to promote market position. No matter when and where, the company has always uphold the concept of quality service, take the initiative to communicate with customers by heart, rapid response, know the customer needs, to provide value-added services to customers. Base China, serve the world!

生产设施 PRODUCTION FACILITIES



生产工艺流程图 PROCESS FLOW CHART



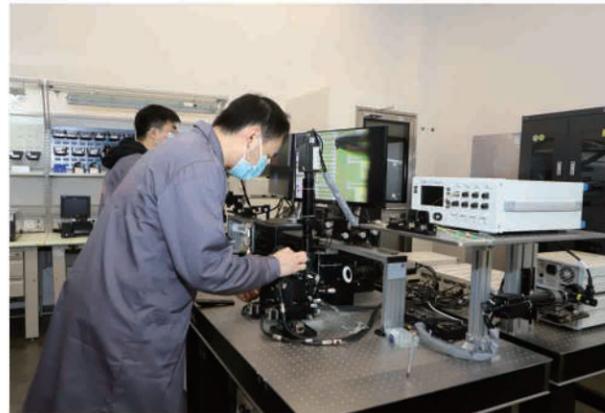
技术中心 TECHNOLOGY CENTER

公司技术中心现为市级企业技术研究开发中心。中心技术力量雄厚，拥有国内一流的炭素检测检验、研发设施和高素质的研发团队，技术研发能力居同行业前列。

Our company technology center has strong technical strength with domestic first-class carbon inspection, research and development facilities and highly qualified R&D team, technology research and development capacity ranks first in the same industry.

公司现拥有九项实用新型专利，先后参与修订冶金行业的产品标准《超高功率石墨电极》YB/T4090-2015和国家标准《石墨电极热膨胀系数(CTE)测定方法》GB/T30744。完成 ϕ 550mm和 ϕ 700mm超高功率石墨电极的工业化研究项目，获得了市科技局的高度认可。

Now, our company has nine utility model patents, had participated in revising the standards of UHP graphite electrode<YB/T4090-2015>and the national standard Measuring Method of Graphite electrode thermal expansion coefficient(CTE)<GB/T3074.4>. We finished the industrial research project of ϕ 550mm and ϕ 700mm UHP graphite electrode, got the high-level recognition by municipal Technology Bureau.



检测中心 TESTING CENTER

公司检测中心主要从事炭素生产原料、生产工序半成品、成品的质量检验以及炭素生产副产品检验等，拥有国内领先的检测、检验设备和仪器，拥有炭素生产相关的国家、行业检验标准和技术资料。中心各项管理制度健全，工作规范，管理严格，检测、检验能力居国内同行业前列。

Our Company Testing Center is mainly engaged in quality inspection of carbon production raw materials, semi-finished products in production processes, finished products and by-products. It has the leading domestic testing, inspection equipment and instruments, the industry inspection standard and the technical data of the carbon production country. With sound management system, standard work, strict management, its detection and inspection ability stands forefront in the domestic industry.

超高功率石墨电极技术指标 UHP TECHNICAL PARAMETERS

项目 Item	单位 Unit	公称直径 (mm) Nominal Diameter												
		YB/T4090 行业标准 (Industry standard)				DHTS-HP 企业标准 (Enterprise standard)				DHTS-HP 实测值 (Measured Value)				
		250\400		450\500		250\400		450\500		250\400		450\500		
电阻率 Electric Resistivity	电极 Electrode	μ ΩM	≤6.20	≤6.30	≤6.00	≤5.80	4.80-5.80	4.50-5.60	4.50-5.60	4.50-5.40	4.50-5.80	4.50-5.40	4.50-5.40	4.50-5.20
	接头 Nipple		≤5.30	≤5.30	≤4.50	≤4.30	3.40-3.80	3.40-3.80	3.40-3.80	3.00-3.50	3.40-3.80	3.40-3.80	3.40-3.80	3.00-3.50
体积密度 Bulk Density	电极 Electrode	g/cm³	≥1.67	≥1.66	≥1.66	≥1.68	1.72-1.74	1.70-1.72	1.70-1.72	1.70-1.72	1.73-1.75	1.70-1.73	1.70-1.72	1.70-1.72
	接头 Nipple		≥1.74	≥1.75	≥1.78	≥1.78	1.79-1.84	1.80-1.86	1.82-1.88	1.84-1.88	1.80-1.84	1.80-1.84	1.83-1.87	1.84-1.88
抗折强度 Flexural Strength	电极 Electrode	MPa	≥10.5	≥10.5	≥10.0	≥10.0	12.0-15.0	12.0-14.0	10.0-14.0	10.0-14.0	12.0-14.0	12.0-14.0	10.0-14.0	10.0-14.0
	接头 Nipple		≥20.0	≥20.0	≥22.0	≥23.0	22.0-26.0	22.0-28.0	22.0-30.0	25.0-30.0	22.0-26.0	23.0-28.0	23.0-30.0	25.0-30.0
热膨胀系数 CTE	电极 Electrode	10 ⁻⁶ /°C	≤1.50	≤1.50	≤1.50	≤1.50	1.20-1.40	1.20-1.40	1.20-1.40	1.20-1.40	1.20-1.40	1.20-1.40	1.20-1.40	1.20-1.40
	接头 Nipple		≤1.40	≤1.40	≤1.30	≤1.30	1.00-1.20	1.00-1.20	1.00-1.20	1.00-1.20	1.00-1.20	1.00-1.20	1.00-1.20	1.00-1.20
弹性模量 Elastic Modulus	电极 Electrode	GPa	≤14.0	≤14.0	≤14.0	≤14.0	10.0-14.0	10.0-14.0	10.0-14.0	10.0-14.0	10.0-13.0	10.0-13.0	9.00-13.0	9.00-13.0
	接头 Nipple		≤20.0	≤20.0	≤22.0	≤22.0	16.0-18.0	16.0-19.0	18.0-20.0	18.0-20.0	16.0-18.0	16.0-18.0	18.0-20.0	18.0-20.0
灰分 Ash	电极 Electrode	%	≤0.50	≤0.50	≤0.50	≤0.50	≤0.20	≤0.20	≤0.20	≤0.20	0.01-0.15	0.01-0.15	0.01-0.15	0.01-0.15
	接头 Nipple													
真密度 Real Density	电极 Electrode	g/cm³	---	---	---	---	2.22-2.24	2.22-2.24	2.22-2.24	2.22-2.24	2.22-2.23	2.22-2.23	2.22-2.24	2.22-2.24

允许电流负荷 PERMISSIBLE CURRENTLOAD

公称直径 Nominal Diameter	截面积 Cross Secional Area	YB/T4090行业标准 (Industry standard)				DHTS-HP企业标准 (Enterprise standard)			
		允许电流负荷 Permissible Current Load		电流密度 Current Density		精炼炉 (LF)		电流密度 Current Density	
		A	A/cm²	A	A/cm²	A	A/cm²	A	A/cm²
12	300	720	15000-22000	20-30	16000-23000	22-32	18000-25000	25-35	
14	350	973	20000-30000	20-30	21000-31000	22-31	23000-34000	24-35	
16	400	1275	25000-40000	19-30	26000-42000	20-33	28000-46000	22-36	
18	450	1622	32000-45000	19-27	33000-47000	20-29	36800-52000	23-32	
20	500	2000	38000-55000	18-27	40000-58000	20-29	43000-63000	22-32	
22	550	2427	45000-65000	18-27	47000-65000	19-27	---	---	
24	600	2892	50000-75000	18-26	52000-78000	18-27	---	---	
26	650	3388	60000-85000	18-25	70000-86000	21-25	---	---	
28	700	3935	70000-91000	18-23	73500-96000	18-24	---	---	
30	750	4522	75000-115000	16-25	90000-130000	20-29	---	---	

超高功率石墨电极外形尺寸重量表 TABLE OF UHP DIMENSIONS&WEIGHT

高功率石墨电极外形尺寸重量表 Table of HP Dimensions & Weight											
直径 Nominal Dia		允许范围 (mm) Permissible Range		长度 Length		允许范围 (mm) Permissible Range		标准重量 Standard Weight			
in	mm	max	min	in	mm	max	min	Kg			
								T3N	T3L	T4N	T4L
12	300	307	302	72	1800	1900	1700	229	---	231	---
				64	1600	1700	1500	203	---	205	---
14	350	357	352	72	1800	1900	1700	294	---	297	294
				84	2100	2200	2000	342	314	347	342
16	400	408	403	60	1500	1600	1400	315	382	320	318
				72	1800	1900	1700	383	446	388	386
18	450	460	454	84	2100	2200	2000	447	476	453	450
				72	1800	1900	1700	477	560	486	483
20	500	511	505	84	2100	2200	2000	561	644	570	567
				96	2400	2500	2300	645	---	654	651
22	550	562	556	72	1800	1900	1700	587	---	595	590
				84	2100	2200	2000	691	---	699	694
24	600	613	607	96	2400	2500	2300	795	---	803	798
				108	2700	2800	2600	---	---	---	---
26	650	663	659	84	2100	2200	2000	---	---	1003	995
				96	2400	2500	2300	---	---	1152	1144
28	700	714	710	108	2700	2800	2600	---	---	1301	1293
				84	2100	2200	2000	---	---	1201	1190
30	750	765	761	96	2400	2500	2300	---	---	1377	1366
				108	2700	2800	2600	---	---	1554	1543
				84	2100	2200	2000	---	---	---	1337
				96	2400	2500	2300	---	---	---	1540
				108	2700	2800	2600	---	---	---	1743
				84	2100	2200	2000	---	---	---	1566
				96	2400	2500	2300	---	---	---	1799
				108	2700	2800	2600	---	---	---	2033

3扣超高功率接头外形尺寸重量表 TABLE OF 3TPI NIPPLE DIMENSIONS&WEIGHT(UHP)

3扣超高功率接头外形尺寸重量表 Number of threads per inch=3						
电极直径 Eletrode Dia		接头尺寸 Nipples			单重 Standard weight kgs/pcs	
in	mm	扣型 Nipple Shape	A mm	L mm	UHP1	UHP2
10	250	155T3N	155.57	220.00	5.35	5.26
12	300	177T3N	177.16	270.90	8.42	8.12
14	350	215T3N	215.90	304.80	15.03	14.86
16	400	241T3N	241.30	338.70	20.92	20.69
16	400	241T3N	241.30	355.60	21.84	21.60
18	450	273T3N	273.05	355.60	28.73	28.41
18	450	273T3N	273.05	457.20	30.05	29.72
20	500	298T3N	298.45	372.60	37.06	36.65



4扣超高功率接头外形尺寸重量表 TABLE OF 4TPI NIPPLE DIMENSIONS&WEIGHT(UHP)

3扣超高功率接头外形尺寸重量表 Number of threads per inch=3						
电极直径 Eletrode Dia		接头尺寸 Nipples			单重 Standard weight kgs/pcs	
in	mm	扣型 Nipple Shape	Amm	L mm	UHP1	UHP2
10	250	152T4N	152.40	190.50	4.85	4.77
12	300	177T4N	177.80	215.90	7.59	7.47
14	350	203T4N	203.20	254.00	11.55	11.42
14	350	203T4L	203.20	304.80	15.03	14.86
16	400	222T4N	222.25	304.80	16.13	15.95
16	400	222T4L	222.25	355.60	18.09	17.89
18	450	241T4N	241.30	304.80	19.68	19.46
18	450	241T4L	241.30	355.60	22.00	21.75
20	500	269T4N	269.88	355.60	28.43	28.12
20	500	269T4L	269.88	457.20	34.12	33.74
22	550	298T4L	298.45	457.20	44.10	43.62
24	600	317T4N	317.50	355.60	41.90	41.44
24	600	317T4L	317.50	457.20	50.87	50.32
26	650	355T4N	355.60	457.20	65.52	64.80
26	650	355T4L	355.60	558.80	75.58	74.76
28	700	374T4L	374.65	558.80	86.20	85.25
30	750	406T4L	406.40	609.60	108.38	106.02



高功率石墨电极技术指标 HP TECHNICAL PARAMETERS

项目 Item	单位 Unit	公称直径 (mm) Nominal Diameter						
		YB/T4090 行业标准 (Industry standard)		DHTS-HP 企业标准 (Enterprise standard)		DHTS-HP 实测值 (Measured Value)		
		250\400	450\500	250\400	450\500	250\400	450\500	
电阻率 Electric Resistivity	电极 Electrode	μΩM	≤7.00	≤7.50	5.60-6.80	5.80-6.80	5.60-6.50	5.80-6.50
	接头 Nipple		≤6.30	≤6.30	3.50-4.50	3.50-4.50	3.50-4.30	3.50-4.20
体积密度 Bulk Density	电极 Electrode	g/cm³	≥1.60	≥1.60	1.73-1.75	1.72-1.74	1.73-1.75	1.72-1.74
	接头 Nipple		≥1.72	≥1.72	1.79-1.83	1.79-1.84	1.80-1.82	1.82-1.84
抗折强度 Flexural Strength	电极 Electrode	MPa	≥10.5	≥10.0	11.0-14.0	11.0-14.0	12.0-15.0	11.0-15.0
	接头 Nipple		≥17.0	≥17.0	20.0-24.0	22.0-24.0	22.0-26.0	22.0-26.0
热膨胀系数 CTE	电极 Electrode	10 ⁻⁶ /°C	≤2.40	≤2.40	1.70-2.00	1.70-2.00	1.70-2.00	1.60-2.00
	接头 Nipple		≤2.20	≤2.20	1.40-1.80	1.40-1.80	1.40-1.80	1.40-1.80
弹性模量 Elastic Modulus	电极 Electrode	GPa	≤14.0	≤14.0	9.00-12.0	9.00-12.0	9.00-12.0	9.00-11.5
	接头 Nipple		≤16.0	≤16.0	12.0-16.0	12.0-18.0	14.0-16.0	15.0-18.0
灰分 Ash	电极 Electrode	%	≤0.50	≤0.50	≤0.20	≤0.20	0.05-0.15	0.05-0.15
	接头 Nipple							
真密度 Real Density	电极 Electrode	g/cm³	--	--	2.21-2.23	2.21-2.23	2.22-2.23	2.22-2.23

允许电流负荷 PERMISSIBLE CURRENTLOAD

公称直径 Nominal Diameter	截面积 Cross Sectional Area	YB/T4090行业标准 (Industry standard)		DHTS-HP企业标准 (Enterprise standard)		
		允许电流负荷 Permissible Current Load	电流密度 Current Density	精炼炉 (LF)		
				允许电流负荷 Permissible Current Load	电流密度 Current Density	
in	mm	cm²	A	A/cm²	A	A/cm²
10	250	502	8000-13000	16-25	8500-13500	17-27
12	300	720	13000-17400	17-24	13600-18000	19-26
14	350	973	17400-24000	17-24	18270-25200	19-26
16	400	1275	21000-31000	16-24	22050-32550	17-26
18	450	1622	25000-40000	15-24	26250-42000	16-26
20	500	2000	30000-48000	15-24	31500-50400	16-25

高功率石墨电极外形尺寸重量表 TABLE OF HP DIMENSIONS&WEIGHT

高功率石墨电极外形尺寸重量表 Table of HP Dimensions & Weight											
直径 Nominal Dia		允许范围 (mm) Permissible Range		长度 Length		允许范围 (mm) Permissible Range		标准重量 Standard Weight			
in	mm	max	min	in	mm	max	min	Kg			
								T3N	T3L	T4N	T4L
10	250	256	251	72	1800	1900	1700	155	--	160	--
				80	2000	2100	1900	176	--	178	--
12	300	307	302	72	1800	1900	1700	229	--	231	--
				84	2100	2200	2000	267	--	269	--
14	350	357	352	72	1800	1900	1700	290	--	293	290
				84	2100	2200	2000	338	--	342	338
16	400	408	403	60	1500	1600	1400	313	312	317	315
				72	1800	1900	1700	379	378	383	381
				84	2100	2200	2000	442	441	447	524
				72	1800	1900	1700	475	473	484	480
18	450	460	454	84	2100	2200	2000	555	553	563	561
				96	2400	2500	2300	638	636	646	644
				72	1800	1900	1700	581	--	589	584
20	500	511	505	84	2100	2200	2000	684	--	692	687
				96	2400	2500	2300	786	--	784	789

普通功率石墨电极技术指标 RP TECHNICAL PARAMETERS

项目 Item	单位 Unit	公称直径 Nominal diameter				
		冶标 YB/T4090		DHTS-HP 企业标准 (Enterprise standard)		
		150-300	350-500	200-300	350-500	550-600
电阻率 Specific resistance	电极E	≤10.5	≤10.5	≤8.0	≤9.0	≤9.5
	接头N	≤8.5	≤8.5	≤6.0	≤6.5	≤7.0
抗拆强度 Bending Strength	电极E	≥9.8	≥6.4	≥10.4	≥8.0	≥8.0
	接头N	≥13.0	≥13.0	≥14.0	≥14.0	≥14.0
强性模量 Elastic modulus	电极E	≤9.3	≤9.3	≤10.3	≤10.3	≤10.3
	接头N	≤14.0	≤14.0	≤14.0	≤14.0	≤14.0
体积密度 Bulk density	电极E	≥1.52	≥1.52	≥1.58	≥1.60	≥1.60
	接头N	≥1.68	≥1.68	≥1.70	≥1.70	≥1.70
灰分Ash	电极E	≤0.5	≤0.5	≤0.4	≤0.4	≤0.4
	接头N					
热膨胀系数 CTE	电极E	≤2.9	≤2.9	≤2.8	≤2.8	≤2.8
	接头N	≤2.7	≤2.8	≤2.8	≤2.8	≤2.8

公称直径 Nominal diameter		截面积 Sectional area	冶标 YB/T4090 DHTS-HP 企业标准 (Enterprise standard)			
in	mm		允许电流负荷 Allowable current load	电流密度 Current density	允许电流负荷 Allowable current load	电流密度 Current density
		cm ²	A	A/cm ²	A	A/cm ²
8	200	314	5000-6900	15-21	5000-9000	17-28
9	225	397			6800-10000	17-26
10	250	495	7000-10000	14-20	8000-12000	16-24
12	300	716	10000-13000	14-18	11000-16000	15-22
14	350	973	13500-18000	14-18	15000-22000	15-22
16	400	1275	18000-23500	14-18	20000-28000	15-21
18	450	1622	22000-27000	13-17	24000-34000	13-20
20	500	2002	25000-32000	13-16	28000-36000	13-18
22	550	2427	-	-	31500-41000	13-17
24	600	2892	-	-	38000-46000	13-16

特大规格普通石墨电极理化指标 Large-sized RP Physical and chemical indexes

项目 Item	单位 Unit	公称直径 Nominal diameter, mm			
		φ 650- φ 750	φ 780- φ 960	φ 1005- φ 1310	
电阻率 Specific resistance	电极 electrode	μΩ·m	12.0	13.0	15.0
			不大于 接头	7.5	7.5
抗拆强度 Bending Strength	电极 electrode	Mpa	6.0	5.2	5.0
			不小于 接头	13.0	13.0
弹性模量 Elastic modulus	电极 electrode	Gpa	12.0	12.0	12.0
			不大于 接头	14.0	14.0
热膨胀系数 CTE	电极 electrode	10 ⁻⁶ /°C	2.9	2.9	2.9
			不大于 接头	2.8	2.8
体积密度 Bulk density	电极 electrode	g/cm ³	1.58	1.58	1.58
			不小于 接头	1.68	1.68
灰分 Ash	不大于	%	0.5	0.5	0.5

特大规格普通石墨电极理化指标 Large-sized RP Physical and chemical indexes

电极直径 (mm) Electrode diameter	允许最高电流负荷 (A) Allowable max current load (A)	允许最高电流密度 (A/cm ²) Allowable max current density (A/cm ²)
φ 650	43100	13.0
φ 700	46200	12.0
φ 780	57300	12.0
φ 800	60300	12.0
φ 850	6200	11.0
φ 900	69900	11.0
φ 960	72400	10.0
φ 1005	79200	10.0
φ 1020	73500	9.0
φ 1060	79400	9.0
φ 1100	85500	9.0
φ 1146	92800	9.0
φ 1272	101600	8.0
φ 1310	107770	8.0

电极折损原因 THE CAUSE OF ELECTRODE BREAKAGE

电极受力状态，从上向下力的程度依次递减，位于夹持器下方的电极和接头部位受力最大。

当电极受到外力时：应力集中的外力 > 电极强度 → 导致电极折损。

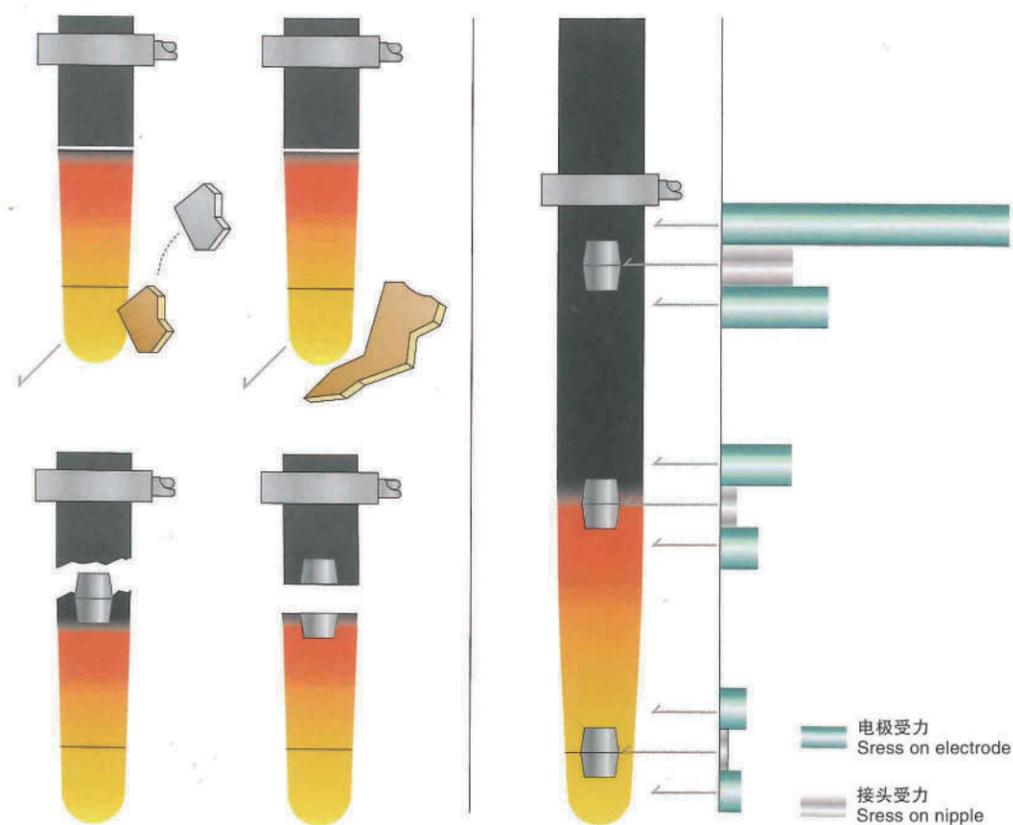
外力产生的原因有：熔化期大块炉料崩塌、废钢中电极下端不导电物体、块状流钢撞击等。

电极夹持器升降应答速度不协调、炉盖电极孔偏芯、电极连接不良使接缝处有间隙和使用强度不达标的接头等也易造成折损。电极与接头加工精度不良，造成配合不好，也易造成接头折损。

Electrode is stressed decreasingly downward; the electrodes and nipples under the clamping device take maximum force

When electrodes receive external force, in case of the concentration of the external force is greater than the electrode strength, the electrode will break.

The causes of external force are: bulk charge collapse during melting, non-conductive objects below the electrode in the scraps; impact of massive steel bulk flow and etc. uncoordinated response speed of clamping device lifting/descending; eccentric electrode hole of lid; gap because of bad connection of electrodes, and requested nipple strength is not reached. Electrodes and nipples with poor machining accuracy



块钢撞击使电极折损
Steel block impact make the electrode breakage

防止电极折断、脱扣和过度氧化的预防措施 PREVENTIVE MEASURE

采取以下措施，炼钢过程中能有效避免电极折断、脱扣和过度氧化情况：

- 调节好电相序，三相交流电炉中，电极相序要正确，相序应为逆时针方向，若为顺时针方向，则电极使用时会松动，造成折损。
- 减少由机械外力、炉内塌料和操作不当引起的折断和破损，装炉时大块钢料应尽量装在炉下层，且废刚料在炉内要分布均匀。
- 避免废刚中存在非导电材料，不要使石灰等非导电物体聚集在电极正下方，影响通电或折断电极。
- 注意炉盖位置，电极柱与炉顶孔对中，且电极柱平行，炉顶孔壁要经常清理，避免残留钢渣堆积而挤断电极。
- 保持电炉倾动系统的状态良好，使电炉倾动保持平稳。
- 电极夹持器避免夹在电极连接处和电极接头孔处。
- 选用强度高加工精度好的优质接头、使用时避免多家产品混用。
- 保护好电极端面，防止端面氧化和嵌入异物造成端面不平整而影响电极间的连接。
- 电极连接前和连接过程中，防止电极孔和接头螺纹受到机械损伤。
- 电极孔和接头上防止钢渣或异物嵌入影响旋接，使用前，要用压缩空气吹净。
- 减少电极周界的氧化消耗，加强炉子的密封性，减少空气侵入炉内；尽量减少赤热电极在炉外暴露时间，规范吹氧操作。
- 对于熔炼炉，若条件允许，电极采用喷淋冷却技术，能有效降低电极侧面氧化消耗。

TAKE THE BELOW ACTIONS TO AVOID ELECTRODE BREAK UP, TRIP AND OVER-OXIDATION DURING STEELMAKING:

- Adjust the phase sequence of electrodes. In the three-phase electric arc furnace, the phase sequence should be right of anticlockwise. Breakage will happen because of the loosening taken place because of the clockwise sequence.
- Reduce the fractures and breakages because of external mechanical force, material collapse in the furnace and improper operation. Load large pieces of steel material in the lower level of the furnace and distribute the scrap evenly.
- Avoid non-conductive materials in the scrap: don't put lime and other non-conductive objects aatherina iust naht under the electrodes
- Attention to the lid position: Alian the electrode columns with the roof hole and keep the electrodes column in parallel. Always keep the roof hole wal clean in order to avoid the accumulation of residual slag
- Maintain the furnace tilting system in good condition so the furnace tilting remain stable
- Avoid clamping device holds electrode junction and nipple joint
- Protect the end faces of electrodes. Avoid bad connection because of end faces oxidation and emibed foreign object
- Protect the tips of electrodes and nipples thread from mechanical damage before and during connecting of electrodes
- Prevent slag or foreign objects embedding the surface of electrodes and nipples which wil affect the threading in; blow the surface with compressed air before connection
- Reduce the consumption of oxidation of the electrode perimeter to enhance the sealing of the furnace in order to reduce air intrusion. Minimize the exposure time of the hot electrodes outside the furnace. Appropriate operation of oxygen blowing
- Select nipple of aood auality and aood machinina accuracy, avoid mixed using nipples from several suppliers.
- Suggest to take spray cooling technology for melting furnace; it can effectively reduce the oxidative consumption of the surface of electrodes

石墨电极推荐接合扭矩

GRAPHITE ELECTRODE RECOMMENDED JOINT TORQUE

电极直径 Eletrode Dia		扭矩 Torque		电极直径 Eletrode Dia		扭矩 Torque	
mm	inch	Nm	ft-lbs	mm	inch	Nm	ft-lbs
250	10	450	333	500	20	2500	1850
300	12	650	480	550	22	3500	2570
350	14	850	630	600	24	4000	2940
400	16	1100	810	650	26	5000	3704
450	18	1500	1100	700	28	6000	4410
				750	30	7500	5522

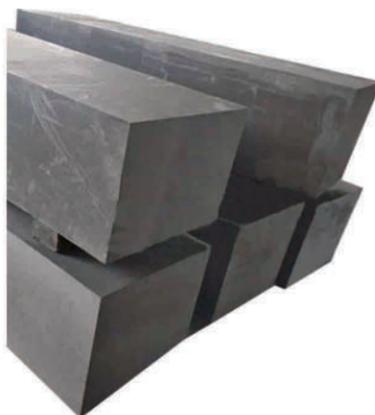
石墨方 GRAPHITE SQUARE

描述和应用

石墨块广泛应用于模具，模具制造，和一般制造行业。我们可以生产3600mm(长) 8.50mm(宽) 850mm (高) 以下的任何规格的石墨块/方

Application Industry of Graphite Block

Graphite Blocks are widely used in the Tooling(EDM),Mould making(EDM),and Gen- eral Manufacturing industries.We can produce any specifications of the graphite square|graphite block below the size 3600mm(length)x850mm(width)x850mm(height).



石墨块产品规格

Graphite Block Products Specification

PROCESSING METHOD	SHAPE	SIZE	WEIGHT (kg)	SIZE	WEIGHT (kg)	SIZE	WEIGHT (kg)
Isostatic Pressure Products	Round Products	Φ920*700	1040	Φ750*780	750	Φ400*1200	295
		Φ860*720	900	Φ750*750	630	Φ220*700	65
		Φ850*850	1050	Φ330*1200	235		
		Φ780*700	720	Φ460*1100	380		
	Square Products	2100*500*300	705	650*500*200	145	1600*500*300	550
		1500*500*400	720	500*500*400	275	860*350*350	230
		1400*650*300	650	690*390*190	140		
		1300*520*160	240	1800*500*300	650		
Molded Products	Round Products	Φ90*200	2.6	Φ160*260	10	Φ205*260	17.5
		Φ115*200	4.4	Φ180*260	12.9	Φ235*410	35
		Φ135*260	7.7	155*220	8.5		
		Φ150*260	9	Φ205*240	15.5		
	Square Products	900*300*200	117	410*310*200	49	650*210*150	40
		550*450*200	100	410*310*180	45	385*270*200	41
		500*400*200	82	140*310*160	40	330*260*150	26.5
		500*300*200	62.4	410*310*150	34	600*500*200	125
		500*300*180	53.5	310*310*210	38.5		
Remarks	1. Product performance is product center position indicator 2. Gas Porosity is the sum of open and closed gas porosity 3.The above values are representative , not guaranteed values						

石墨废料 GRAPHITE SCRAP



描述和应用

石墨废料在不同的材料中有不同的定义。一些资料和文献将所有小的石墨颗粒称为石墨废料（如石墨粉）；而另一种观点认为，石墨制品有不同的尺寸，块状的制品称为石墨废料。这里所说的石墨废料是第二种，也称为石墨块。石墨废料是在石墨制品的石墨化和加工过程中产生的。它在炼钢和铸造工业中用作增碳剂和导电材料。也可根据客户要求加工。它们还广泛用于电弧炉（炼钢）和电化学炉（冶金和化工）。

河北威碳有限公司的石墨产品具有优良的导电性、紧凑的结构、低弹性模量、高强度、低灰分含量和抗氧化功能。

Description & Application

Graphite Scrap has different definitions in different materials. Some materials and literature refer to all small graphite particles as graphite scraps(such as graphite powder); while another opinion is that graphite products have different sizes and the products in blocks are called graphite scraps. The graphite scrap referred herein is the second type and is also called graphite block. The graphite scrap is produced during graphitization and machining of graphite products.It is used as an additive and conductive material in the steelmaking and casting industries. It can also be processed according to customer requirements. They are also widely used in electric arc furnaces(steelmaking)and electrochemical furnaces(metal- lurgical and chemical industries)

Graphite products of He bei Well carbon Co., Ltd.have excellent electrical conductivity, compact structure,low elastic modulus, high strength, low ash content and an- ti-oxidation functions.

煅烧石油焦 CALCINED PETROLEUM COKE

煅烧石油焦是炼油厂中提取的延迟焦经煅烧而成。虽然煅烧石油焦相比沥青焦有较高的含硫量与含氮量，但价格上的优势也使之广泛用于炼钢、铸造材料当中作为增碳剂的一种。

Calcination of petroleum coke is the calcination of delayed coke extracted from refinery. Although calcined petroleum coke has higher sulfur and nitrogen content than asphalt coke, its price advantage also makes it widely used as a kind of carburizing agent in steelmaking and foundry materials.

理化指标 PHYSICOCHEMICAL INDICES

型号代码 Mode Number	含碳 F.C Min%	硫 S	灰分 Ash	挥发分 V.M. Max%	水 Moisture	氮 Nitrogen	真密度 True Density Min g/cm3
SH-CPC-98.5	98.5	0.5	0.5	0.5	0.5	0.30-0.80	2.04-2.08
SH-CPC-98.5	98.5	0.7	0.5	0.5	0.5	0.30-0.80	2.04-2.08
SH-CPC-98.5	98.5	1.5	0.5	0.5	0.5	0.30-0.80	2.04-2.08
SH-CPC-98.5	98.5	2.0	0.5	0.5	0.5	0.30-0.80	2.04-2.08
SH-CPC-98.5	98.5	3.0	0.5	0.5	0.5	0.30-0.80	2.04-2.08
SH-CPC-(97-98.5)	97-98.5	0.5-3.5	0.5-0.8	0.5-0.8	0.5	0.30-0.80	2.04-2.08
颗粒度 Size	1-3mm,1-5mm,0-1mm,2-8mm,0-25mm,最少含量90%，粒度可根据客户需求。 (90%min or according to customers' requirements)						
包装 Packing	25公斤袋 In 25kgs bag 25公斤袋装到1000公斤袋或900公斤袋，In 25kgs bag, then into 1000kgs or 900kgs big bag; 1000公斤袋 900公斤袋，In 1000kgs big bag; In 900kgs big bag;						



石墨增碳剂 GRAPHITE CARBURIZER

石墨碎Graphitescrap、石墨粉Graphitepower、电极焙烧碎Bakedscrap、石墨化石油焦GPC。石墨增碳剂是指碳素产品通过高温或者其他方式使其的分子结构改变，有规则的排列，这种分子排列方式，碳的分子间距更宽，更利于在铁液或者钢液中分解。现在市场上的石墨增碳剂一般来说来自两种途径，一种是石墨电极的废料切割。再一个就是石油焦3000度的石墨化产品。

Graphite scrap.graphite powder Graphite power, electrode roasting Baked scrap, graphitized petroleum coke GPC.

Graphite carburizer refers to the regular arrangement of the molecular structure of carbon products by high temperature or other means. This arrangement of the molecule makes the molecular spacing of carbon wider, which is more conducive to decomposition in molten iron or steel. At present, the graphite carburizers on the market generally come from two ways. one is the waste cutting of graphite electrodes. the other is the graphitization products of petroleum coke 3000 degrees

理化指标 PHYSICOCHEMICAL INDICES

型号代码 Mode Number	含碳 F.C Min%	硫 S	灰分 Ash	挥发分 V.M. Max%	水 Moisture	氮 Nitrogen	真密度 True Density Min g/cm3
石墨粉SH-GP-98.5	98.5	0.05	0.50	0.50	0.50	100-300	1-3
石墨粉SH-GP-98.5	98.5	0.05	0.50	0.50	0.50	100-300	1-5
石墨粉SH-GP-98.5	98.5	0.05	0.80	0.50	0.50	100-300	0-2
石墨粉SH-GP-98.5	98.5	0.05	0.50	0.50	0.50	100-300	>100
电极焙烧碎SH-ERS-98.5	97-98.5	0.05	0.50	0.80-1	0.50	3000-8000	100-250/100-350
石墨化石油焦SH-GPC-98.5	98.5	0.05	0.50-1	0.50	0.50	100-300	1-5
石墨化石油焦SH-GPC-98.5	98	0.25	0.50-1	0.80-1	0.50	100-500	1-5
颗粒度 Size	1-3mm,1-5mm,0-1mm,2-8mm,0-25mm,100-250mm,100-350mm,最少含量90%，粒度可根据客户需求。 (90%min or according to customers' requirements)						
包装 Packing	25公斤袋 In 25kgs bag 25公斤袋装到1000公斤袋或900公斤袋，In 25kgs bag, then into 1000kgs or 900kgs big bag; 1000公斤袋 900公斤袋，In 1000kgs big bag; In 900kgs big bag;						



质量检验与保证 QUALITY INSPECTION & ASSURANCE

河北威碳有限公司从原材料、半成品到成品建立了完整的监控、检测设备和质量保证体系。公司已通过ISO9001:2015质量体系认证。在生产管理、质量控制、安全操作、技术开发、职业健康、产品销售、物流统计、客户服务等方面均达到国际标准。

He bei Well carbon Co., Ltd. built up an integrated system of supervision & control, measuring & testing equipment, and quality assurance from raw materials, semi-finished goods to finished goods. We have gone through the ISO9001:2015 quality system certification. International standard on management has been achieved in production management, quality control, safe operation, technology development, occupational health, product sales, logistic statistics and customer service.



客户服务和技术支持 CUSTOMER SERVICE & TECHNICAL SUPPORT

售前服务：与钢厂技术人员沟通，了解炉内的具体要求并提出建议。

Pre-sale service: Discussion with steel plant technicians to get specific requirement of furnace and suggest.



售中服务：电极入炉前对电极连接做现场测量和监督并与钢厂技术人员讨论和评价电极的性能。

Sales service: On-site measurement and supervision on electrode connection before electrodes are put into furnace; Discussion and evaluation on electrode performance with steel plant technician.



售后服务：定期拜访客户了解具体性能结果，听取钢厂的反馈和建议；持续改进产品质量以满足客户需求。

After-sale service: Periodically visit customer to get specific performance results and listen to feedback and suggestion from steel plants; Improve product quality continuously to meet customers' requirement.

包装 PACKAGING

石墨电极用木托盘包装，接头用单独的木盒子包装。这也可以根据客户的要求进行包装。
The graphite electrode is packed with wooden pallet, and the nipple is packed in a separate wooden box. They also can be packaged together according to the requirements of customers.

产品采用防水防尘塑料罩保护，并采用适合陆地、海上运输的钢带固定。
The products are protected by waterproof and dust proof plastic inside and fixed by steel bands which fits for land and sea transportation.

