

## Specification Graphite Electrodes

Electrode diameter and the allowable deviation (Unit: mm)

Nominal Diameter		Actual Diameter ( D )			Nominal Length
In	mm	Max	Min	Rough spot ( B )	
10"	250	256	251	249	1600/1800
12"	300	307	302	299	1600/1800/1900/2000
14"	350	357	352	349	1600/1800/1900/2000/2200
16"	400	409	403	400	1600/1800/1900/2000/2200/2400
18"	450	460	454	451	1600/1800/1900/2000/2200/2400
20"	500	511	505	502	1800/1900/2000/2200/2400
22"	550	562	556	553	1800/2000/2200/2400
24"	600	613	607	604	2000/2200/2400/2700
26"	650	663	657	654	2400/2700/3000
28"	700	714	708	705	2400/2700/3000

Electrode length and to allow deviations (Unit: mm)

Nominal Length	Tolerance		Shorter length tolerance	
	max	min	max	min
1600	+100	-100	-100	-275
1800	+100	-100	-100	-275
1900	+100	-100	-100	-275
2000	+100	-100	-100	-275
2200	+100	-100	-100	-275
2400	+100	-100	-100	-275
2700	+150	-150	-150	-300
3000	+150	-150	-150	-300

### Cone size of graphite electrode joints (Unit: mm)

Above data represent average values and cannot be used as product specification.  
Test methods for determination of data are based on National and International standards when applicable.

Diameter			Nipple				Socket		Pitch
			D	d2	L	l	d1	H	
			Tolerance:				≤	Tolerance:	
mm	in	(-0.30~0)	(-0.30~0)	(-1~0)	(0~0.3)	(0~7)			
3TPI	225	9"	139.70	91.22	203.20	7	141.22	107.60	8.47
	250	10"	155.57	104.20	220.00		157.09	116.00	
	300	12"	177.16	117.39	270.90		148.68	141.50	
	350	14"	215.90	150.48	304.80		217.42	158.40	
	400	16"	215.90	150.48	304.80		217.42	158.40	
	400	16"	241.30	170.23	338.70		242.82	175.30	
	450	18"	241.30	170.23	338.70		242.82	175.30	
	450	18"	273.05	199.17	355.60		274.57	183.80	
	500	20"	273.05	199.17	355.60		274.57	183.80	
	500	20"	298.45	221.73	372.60		299.97	192.20	
	550	22"	298.45	221.73	372.60		299.97	192.20	
	600	24"	336.55	245.73	457.30		338.07	234.60	
3TPIL	350	14"	215.90	144.85	338.70	217.42	175.30	8.47	
	400	16"	241.30	167.43	355.60	242.82	183.80		
	450	18"	273.05	182.23	457.30	274.57	234.60		
4TPI	200	8"	122.24	81.48	177.80	7	115.92	94.90	6.35
	225	9"	139.70	98.94	177.80		133.38	94.90	
	250	10"	152.40	109.52	190.50		146.08	101.30	
	300	12"	177.80	130.69	215.90		171.48	114.00	
	350	14"	203.20	149.74	254.00		196.88	133.00	
	400	16"	222.25	160.32	304.80		215.93	158.40	
	450	18"	241.30	179.37	304.80		234.98	158.40	
	500	20"	269.88	199.49	355.60		263.56	183.80	
	550	22"	298.45	228.06	355.60		292.13	183.80	
	600	24"	317.50	247.11	355.60		311.18	183.80	
	650	26"	355.60	268.27	457.20		349.28	234.60	
	700	28"	374.65	287.32	457.20		368.33	234.60	
4TPIL	300	12"	177.80	124.34	254.00	171.48	133.00	6.35	
	350	14"	203.20	141.27	304.80	196.88	158.40		
	400	16"	222.25	151.86	355.60	215.93	183.80		
	450	18"	241.30	170.91	355.60	234.98	183.80		
	500	20"	269.88	182.55	457.20	263.56	234.60		
	550	22"	298.45	211.12	457.20	292.13	234.60		
	600	24"	317.50	230.17	457.20	311.18	234.60		
	650	26"	355.64	251.38	558.80	349.28	285.40		
	700	28"	374.65	270.39	558.80	368.33	285.40		

### Technical data

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Item	Unit	Nominal Diameter							
		RP		HP		SHP		UHP	
		≤Φ300	≥Φ350	≤Φ400	≥Φ450	≤Φ400	≥Φ450	≤Φ400	≥Φ450
Resistance	E	≤7.5		≤6.5		≤6.0		≤5.5	
	N	≤5.2		≤4.5		≤4,3		≤4.0	
Bending Strength	E	≥9.5	≥7.0	≥12,0	≥11,5	≥12,2	≥11,5	≥12,5	≥11.8
	N	≥18.0		≥20.0		≥20.0		≥20.0	
Elastic Modulus	E	≤9.3		≤12.0		≤13.0		≤14.0	
	N	≤14.0		≤16.0		≤17.0		≤18.0	
Bulk Density	E	≥1.53	≥1.52	≥1.65	≥1.63	≥1.66	≥1.65	≥1.67	≥1.67
	N	≥1.69		≥1.75		≥1.76		≥1.77	
Porosity	E	≤24,0	≤23,0	≤22	≤21,5	≤21,5	≤21,0	≤20,0	≤20,0
	N	≤21,0		≤19,0		≤18,5		≤18,5	
Tensile Strength	E	≥8,0	≥8,5	≥8,9	≥9,0	≥9,2	≥9,5	≥9,5	≥9,8
	N	≥8,5		≥8,8		≥9,0		≥9,0	
CTE	E	≤2.9		≤2.1		≤1,8		≤1,5	
	N	≤2.8		≤2.0		≤1.7		≤1.4	
Ash	%	≤0.5		≤0.2		≤0.2		≤0.2	
FC	%	≥99%		≥99%		≥99%		≥99%	

**Graphite electrode to allow the current load and current density (recommended)**

Nominal Diameter	RP		HP		SHP		UHP	
	Current load A	Current Density A/cm <sup>2</sup>	Current load A	Current Density A/cm <sup>2</sup>	Current load A	Current Density A/cm <sup>2</sup>	Current load A	Current Density A/cm <sup>2</sup>
200	5000-6900	15-21	5500-9000	18-25				
250	7000-10000	14-20	8000-13000	18-25	8500-14000	19-27	9200-15100	21-30
300	10000-13000	14-18	13000-17400	17-24	13000-19500	18.5-27	13000-22000	20-30
350	13500-18000	14-18	17400-24000	17-24	18500-27000	18.5-27	20000-30000	20-30
400	18000-23500	14-18	21000-32000	16-24	23000-36000	17.5-27	25000-40000	19-30
450	22000-27000	13-17	25000-40000	15-24	28000-42000	17-25	32000-45000	19-27
500	25000-32000	13-16	30000-48000	15-24	34000-51000	17-25	38000-55000	18-27
550	32000-40000	13-16	37000-57000	15-23	42000-58000	16.5-23.5	48000-60000	18-24
600	38000-47000	13-16	44000-67000	15-23	48000-69000	16.5-23.5	52000-72000	18-24
700	45000-54000	13-16	54000-73000	15-23	57000-84000	16.5-23.5	62000-95000	18-24

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