
GRAPHITE ELECTRODES



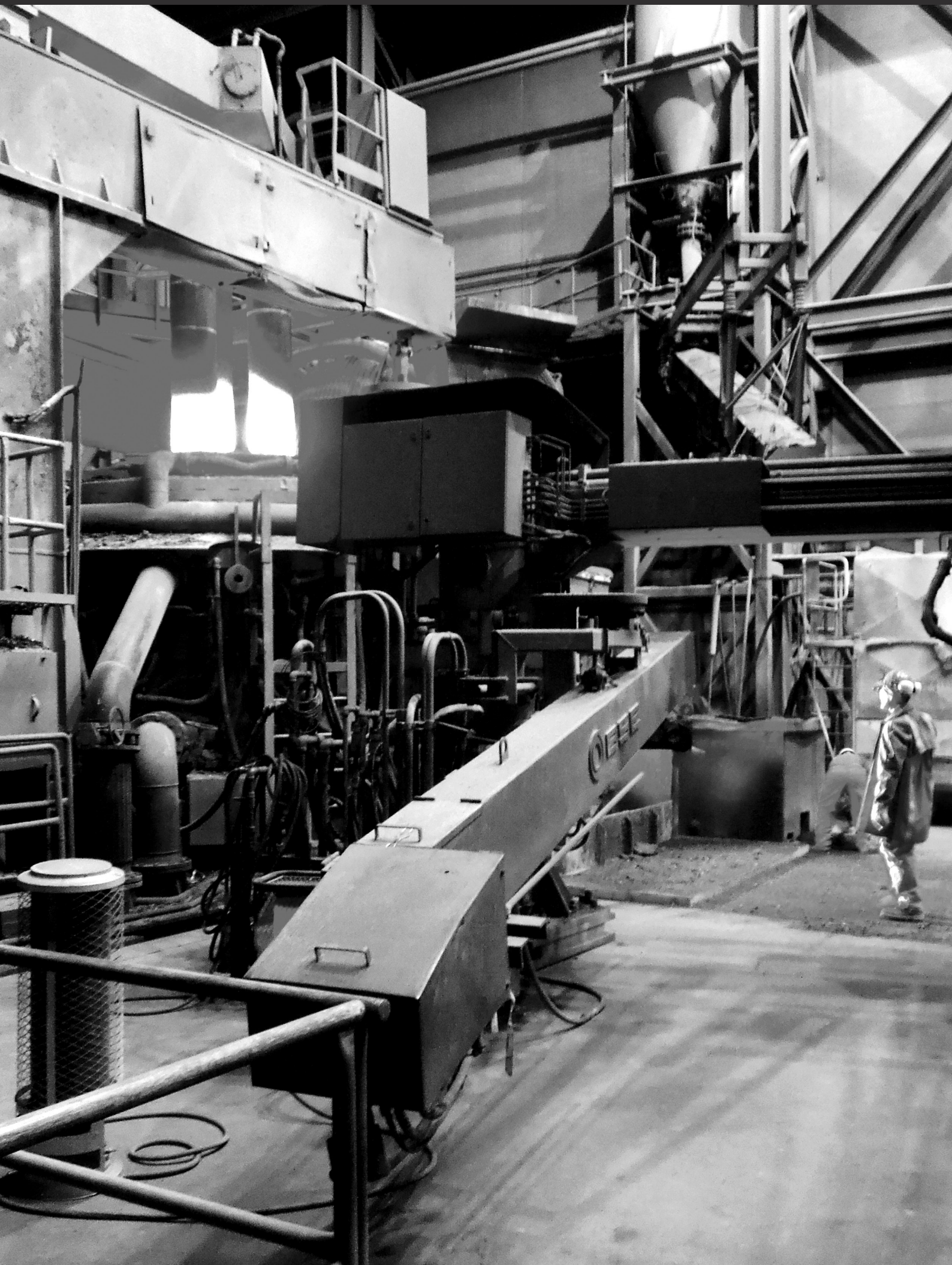


Quality Assured Graphite Electrodes

UKCG's full range of graphite electrodes and connector systems are produced using the world's finest needle cokes and the most advanced production techniques.

Testing, machining, packing and distribution from our dedicated UK and global facilities, ensures our product and service remains consistent, cost effective and reliable.







Manufacturing:

Raw Graphite Production

UKCG Graphite Electrode products have been developed and enhanced through decades of collaboration with a network of raw material partners capable of ensuring our strict quality guidance, recipes and manufacturing protocols. Using a thorough system of knowledge-based selection, our controlled raw graphite procurement model, based on our unique manufacturing know-how, ensures our complete range of graphite electrodes can excel in the world's most demanding applications.

Machining & Testing

UKCG operates a fully integrated graphite testing and machining plant based in Sheffield, UK. This state-of-the-art facility is at the heart of UKCG's global operations, ensuring that every product we produce and supply under the UKCG brand has undergone some of the most stringent testing and quality procedures in the industry.

Our People

UKCG's production operatives have decades of knowledge which has created the enhancement and development of our raw graphite production, machining, equipment and testing methods that are unique to our Company. Our ability to tailor product systems to each customer's demand truly sets us apart from our competitors.



Choosing an Electrode

UKCG works with new and existing customers to select the most suitable product for their applications, always ensuring that quality and cost effectiveness are guaranteed.

UK-X1 Grade is recommended for use in ultra high power large capacity EAF and ultra high power large capacity LMF applications.

UK-X2 Grade is recommended for use in ultra high power EAF and ultra high power LMF applications.

UK-X3 Grade is recommended for use in high power LMF, Foundry and Fused Mineral applications.

Physical Property Data

UK-X1						
DIAMETER METRIC	DIAMETER IMPERIAL	SPECIFIC RESISTANCE	FLEXURAL STRENGTH	BULK DENSITY	CTE	ASH
MM	Inch	$\mu\Omega.m$	MPa	g/cm3	10-6/°C	%
200 - 400	8 - 16	4.4 - 5.8	9 - 13.5	1.69 - 1.79	0.9 - 1.2	0.2
450 - 600	18 - 24	4.2 - 5.5	8.5 - 12.5	1.69 - 1.78	0.9 - 1.2	0.2
650 - 700	26 - 28	4.1 - 5.3	8.5 - 12.5	1.69 - 1.77	0.9 - 1.2	0.2
Connector Pin	All Sizes	3.0 - 4.0	23 - 32	1.79 - 1.86	0.8 - 1.1	0.2

Property values represent typical ranges and do not form a guarantee or warranty for individual electrodes and pins.

UK-X2						
DIAMETER METRIC	DIAMETER IMPERIAL	SPECIFIC RESISTANCE	FLEXURAL STRENGTH	BULK DENSITY	CTE	ASH
MM	Inch	$\mu\Omega.m$	MPa	g/cm3	10-6/°C	%
200 - 400	8 - 16	4.5 - 6.2	9 - 13	1.66 - 1.77	0.9 - 1.4	0.2
450 - 600	18 - 24	4.5 - 6.0	8.5 - 12	1.66 - 1.76	0.9 - 1.4	0.2
Connector Pin	All Sizes	3.0 - 4.0	23 - 32	1.79 - 1.86	0.8 - 1.1	0.2

Property values represent typical ranges and do not form a guarantee or warranty for individual electrodes and pins.

UK-X3						
DIAMETER METRIC	DIAMETER IMPERIAL	SPECIFIC RESISTANCE	FLEXURAL STRENGTH	BULK DENSITY	CTE	ASH
MM	Inch	$\mu\Omega.m$	MPa	g/cm3	10-6/°C	%
200 - 400	8 - 16	4.6 - 6.5	9 - 13	1.65 - 1.75	0.9 - 1.5	0.2
450 - 600	18 - 24	4.6 - 6.5	8 - 12	1.65 - 1.74	0.9 - 1.5	0.2
Connector Pin	All Sizes	3.0 - 4.0	23 - 32	1.79 - 1.86	0.8 - 1.1	0.2

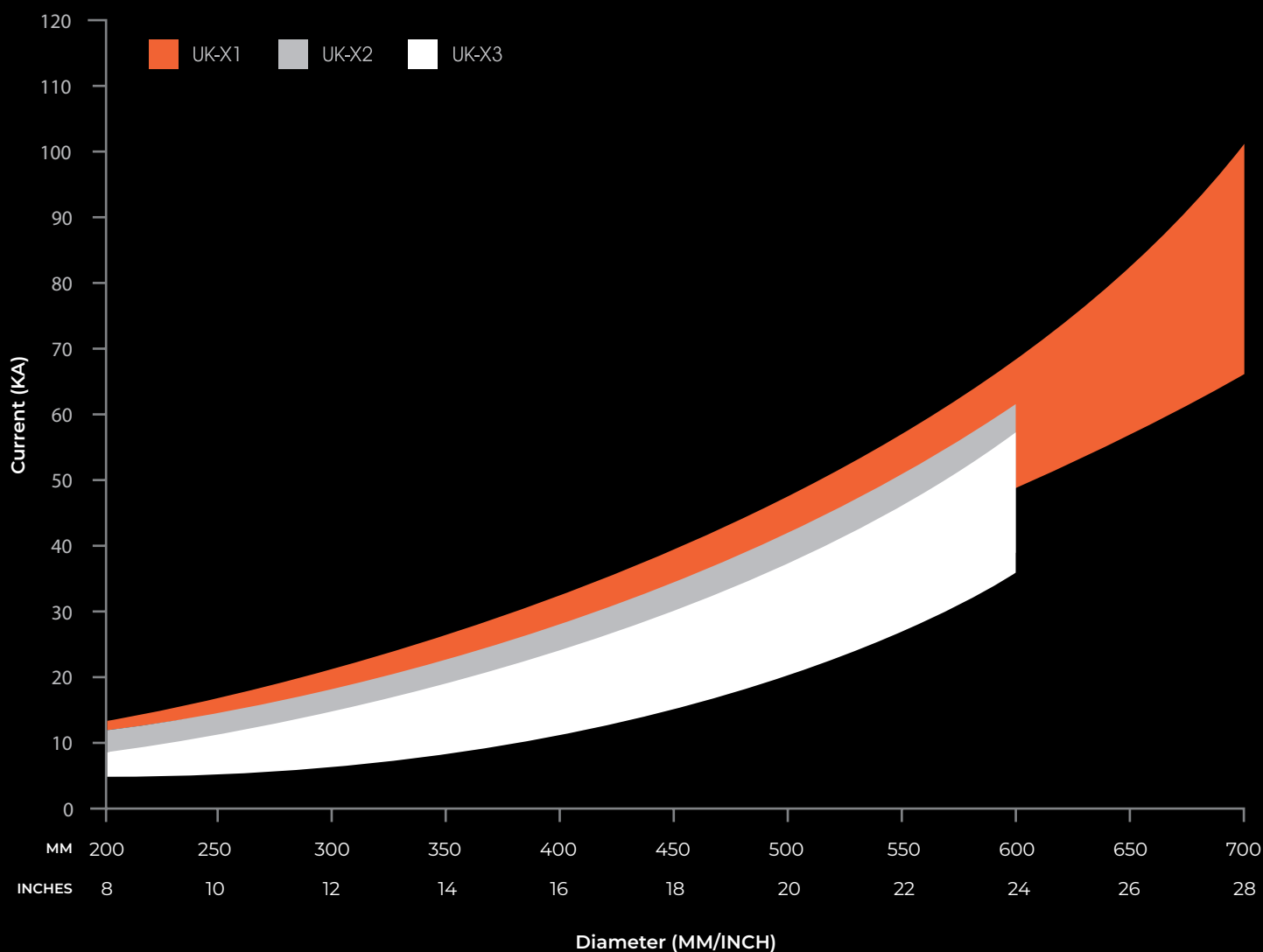
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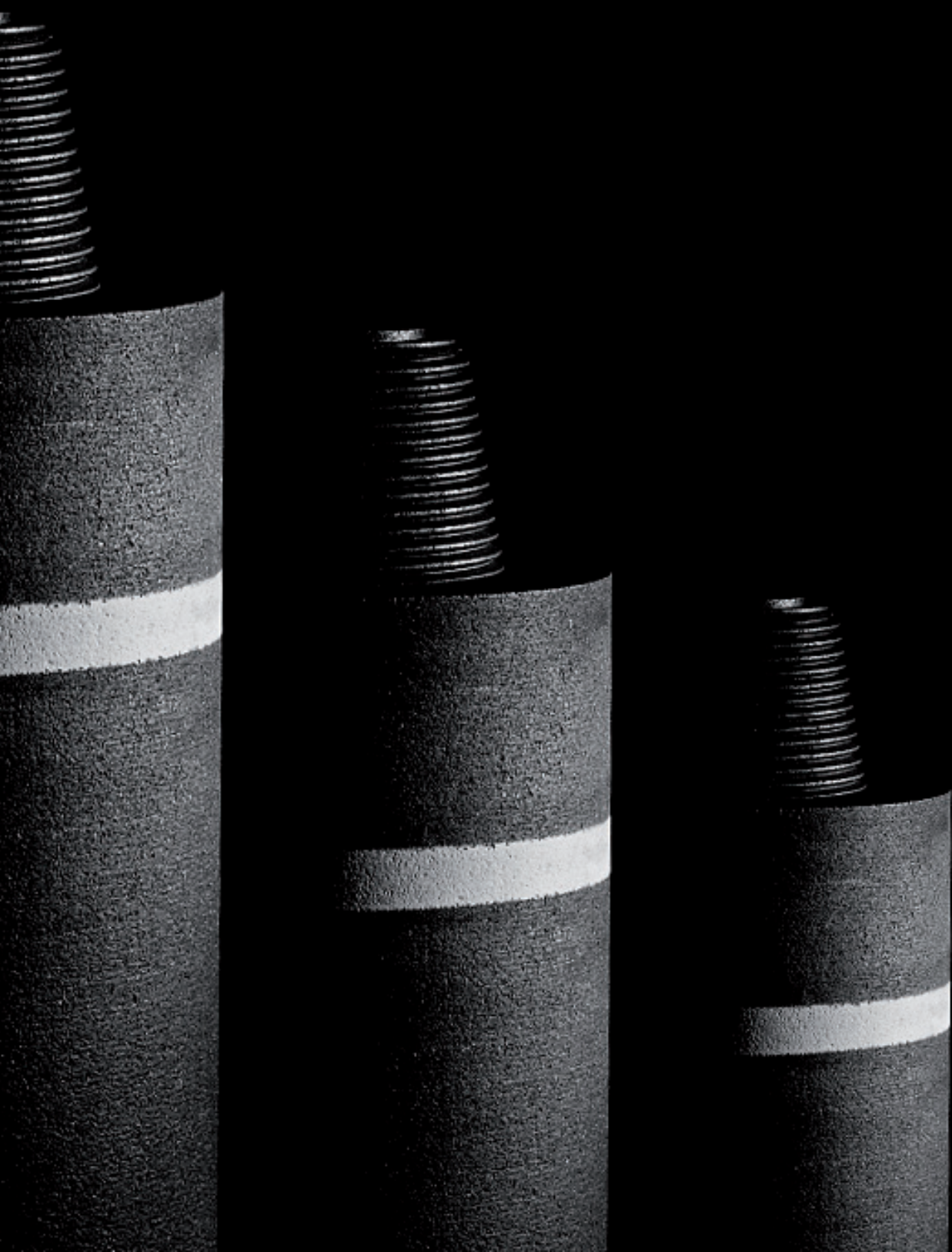


Electrode Current Capacity

Graphite electrode capabilities are determined by not only diameter but also quality of product defined by raw material make up. UKCG have three dominant electrode grades. The UK-X1, UK-X2 and UK-X3 grade electrodes have a range of current capacity limits that need to be respected to avoid malfunction.

Operating the furnace above electrode current limits can increase electrode consumption, tip sublimation and the weakening of joints.







Electrode Diameters / Lengths

UKCG machine to meet IEC International Standards. Our machining facilities and expertise allow us to offer our customers electrode machining to meet their specific demands. Whether an exact tolerance or an over size socket and connector system is needed, we can meet the requirement.

DIAMETERS

NOMINAL DIAMETER (MM)	NOMINAL DIAMETER (INCH)	DIAMETER RANGE (MM)	DIAMETER RANGE (INCH)
75	3	73 – 78	2.87 – 3.07
100	4	98 – 103	3.86 – 4.05
130	5	127 – 132	5.00 – 5.20
150	6	149 – 154	5.87 – 6.06
175	7	174 – 179	6.85 – 7.05
200	8	200 – 205	7.87 – 8.07
225	9	225 – 230	8.86 – 9.05
250	10	251 – 256	9.88 – 10.08
300	12	302 – 307	11.89 – 12.09
350	14	352 – 358	13.86 – 14.09
400	16	403 – 409	15.87 – 16.10
450	18	454 – 460	17.87 – 18.11
500	20	505 – 511	19.88 – 20.12
550	22	556 – 562	21.89 – 22.12
600	24	607 – 613	23.90 – 24.13
650	26	657 – 663	25.87 – 26.10
700	28	708 – 714	27.80 – 28.11

LENGTHS

NOMINAL DIAMETER (MM)	NOMINAL DIAMETER (INCH)	LENGTH RANGE (MM)	LENGTH RANGE (INCH)
1000	40	925 – 1050	36.42 – 41.34
1200	48	1100 – 1250	43.30 – 49.21
1500	60	1400 – 1600	55.12 – 62.99
1800	72	1700 – 1900	66.29 – 74.80
2100	84	1975 – 2225	77.75 – 87.59
2400	96	2275 – 2525	89.56 – 99.40
2700	110	2550 – 2900	100.39 – 114.17

Electrode Connector Combinations

4 TPI

ELECTRODE DIAMETER (MM)	ELECTRODE DIAMETER (INCH)	IEC DESIGNATION CODE	MAJOR CONNECTING PIN DIAMETER (MM)	MAJOR CONNECTING PIN DIAMETER (INCH)	LENGTH OF CONNECTING PIN (MM)	LENGTH OF CONNECTING PIN (INCH)
75	3	45T4N	46.04	1.81	76.20	3
100	4	69T4N	69.85	2.75	101.60	4
130	5	79T4N	79.38	3.12	127.00	5
150	6	92T4N	92.08	3.625	139.70	5.5
175	7	107T4N	107.95	4.25	165.10	6.5
200	8	122T4N	122.24	4.812	177.80	7
225	9	139T4N	139.70	5.5	177.80	7
250	10	152T4N	152.40	6	190.50	7.5
300	12	177T4N	177.80	7	215.90	8.5
350	14	203T4N 203T4L	203.20 203.20	8 8	254.00 304.80	10 12
400	16	222T4N 222T4L	222.25 222.25	8.75 8.75	304.80 355.60	12 14
450	18	241T4N 241T4L 269T4L	241.30 241.30 269.88	9.5 9.5 10.625	355.60 457.20 457.20	14 18 18
500	20	269T4N 269T4L	269.88 269.88	10.625 10.625	355.60 457.20	14 18
550	22	298T4N 298T4L	298.45 298.45	11.75 11.75	355.60 457.20	14 18
600	24	317T4N 317T4L	317.50 317.50	12.5 12.5	355.60 457.20	14 18
650	26	355T4N 355T4L	355.60 355.60	14 14	457.2 558.8	18 22
700	28	374T4N 374T4L	374.65 374.65	14.75 14.75	457.2 558.8	18 22



3 TPI

ELECTRODE DIAMETER (MM)	ELECTRODE DIAMETER (INCH)	IEC DESIGNATION CODE	MAJOR CONNECTING PIN DIAMETER (MM)	MAJOR CONNECTING PIN DIAMETER (INCH)	LENGTH OF CONNECTING PIN (MM)	LENGTH OF CONNECTING PIN (INCH)
225	9	139T3N	139.70	5.5	203.20	8
250	10	155T3N	155.57	6.124	220.00	8.661
300	12	177T3N	177.16	6.97	270.90	10.665
350/400	14/16	215T3N 215T3L	215.90 215.90	8.5 8.5	304.80 355.60	12 14
400/450	16/18	241T3N 241T3L	241.30 241.30	9.5 9.5	338.70 355.60	13.334 14
500	20	273T3N 273T3L	273.05 273.05	10.75 10.75	355.60 457.20	14 18
550	22	298T3N 298T3L	298.45 298.45	11.75 11.75	372.50 457.20	14.66 18"

• UKCG ELECTRODES AND CONNECTING PINS CAN BE SUPPLIED PITCH PLUGGED AND PRESET

RECOMMENDED TORQUE LEVELS

ELECTRODE DIAMETER (MM)	ELECTRODE DIAMETER (INCH)	TORQUE (NM)	TORQUE (FT.LBS)	TORQUE (KG-M)
200	8	250	180	25
225	9	350	260	35
250	10	450	330	45
300	12	650	480	65
350	14	850	630	90
400	16	1100	810	110
450	18	1500	1100	150
500	20	2500	1850	250
550	22	3500	2570	350
600	24	4000	2940	400
650	26	5000	3680	500
700	28	6000	4410	600



Electrode Packaging Guide

Product Packaging

All UKCG products are packed in a manner which ensures complete customer satisfaction. Our packaging is designed to withstand the necessary handling, movement and storage involved in getting our electrodes to our varied customer locations around the globe.

Should you have a specific packaging requirement we can of course endeavour to cater for your requirements but our standard and proven packaging formats are as follows;

Export Packaging

- Electrodes are protected at both connecting pin and exposed socket end.
- Electrodes are steel banded to bearers.
- Electrodes are wood crated and steel banded.

European and North American Packaging

- Electrodes are protected at both connecting pin and exposed socket end.
- Electrodes are steel banded to bearers.



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