

**GRAPHITE
ELECTRODES**



DITH CONSUMABLES



DITH Group

DITH Group operates as manufacturer and distributor of steel products as well as producer and merchant of raw materials and consumables. The headquarter office is located in Lugano, Switzerland and his operative network is spread over 108 Countries. DITH Group is currently employing about 3.500 people worldwide.

DITH CONSUMABLES

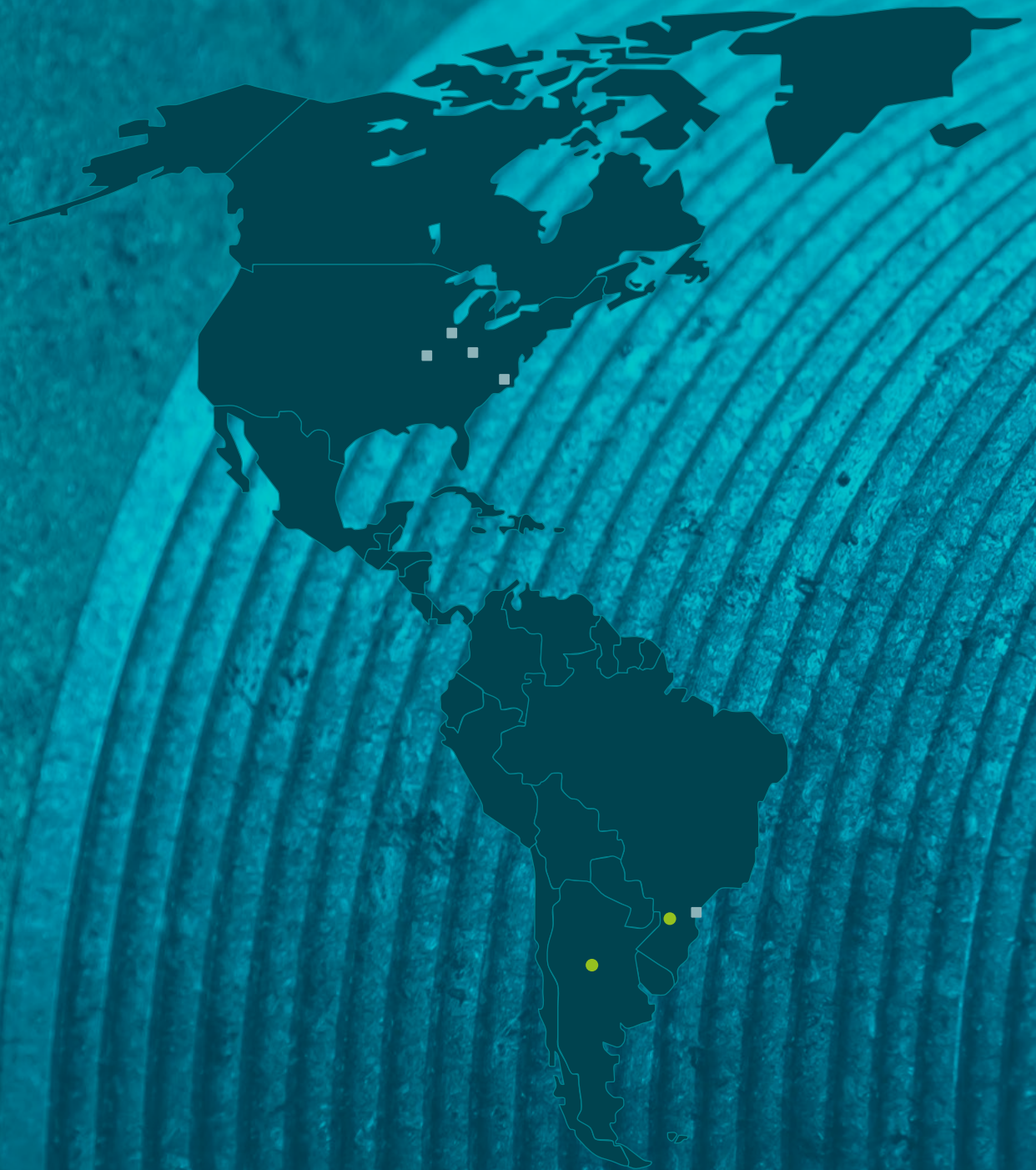
Specific requirements of the growing number of steel production units operated in Europe by the Group were the key issue for its involvement in the manufacturing of consumables such as refractory products and electrodes.

Furthermore, the availability in China of both top quality refractory raw materials and the state of the art of the manufacturing technologies, has suggested the implementation of the activity in this Country. DITH Consumables distributes HP Graphite Electrodes produced by one of the leading electrode manufacturer in China, widely present in the Chinese and foreign market. This production unit is 9001:2000 certified since July 2000.

Nevertheless, following the well consolidated procedure implemented on the consumables for the steel industry, the Group has properly tested these electrodes in its own plants before proposing them to the market.

All product-manufacturing stages, i.e. milling, mixing, forming, baking, impregnation, re-baking, graphitising and machining, undergo a suitable process control in order to ensure high and consistent performances during their use at steel shop.

Global Presence



HEADQUARTERS ▲

OFFICES ■

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TYPICAL PROPERTIES OF UHP GRAPHITE ELECTRODE

APPLICABLE FURNACE

Property		AC Furnace		DC Furnace
		Diameter 450~500mm 18"~20"	Diameter 550~600mm 22"~24"	Diameter 600~700mm 24"~28"
Bulk Density	g/cm ³	1.64~1.75	1.64~1.75	1.64~1.75
Specific Resistance	μΩm	4.2~6.0	4.2~6.0	4.2~5.5
Elastic Modulus	Gpa	7~14	7~14	7~14
	Kgf/mm ²	700~1,400	700~1,400	700~1,400
Flexural Strength	Mpa	10~15	10~15	10~15
	Kgf/cm ²	100~150	100~150	100~150
	N/cm ²	1,000~1,500	1,000~1,500	1,000~1,500
[R.T.~600°C] Coefficient of Thermal Expansion [R.T.~600°C]	×10 ⁻⁶ /°C	1.0~1.5	1.0~1.5	1.0~1.4
Real Density	g/cm ³	2.20~2.23	2.20~2.23	2.20~2.23
Porosity	%	20~27	20~27	20~27
Ash Content	%	≤0.2	≤0.2	≤0.2

Note: above shows the typical average properties

DC EAF

Nominal Diameter		CURRENT CAPACITY [kA]		CURRENT DENSITY [A/cm ³]	
[mm]	[inch]	Without Direct Water Spray Cooling	With Direct Water Spray Cooling	Without Direct Water Spray Cooling	With Direct Water Spray Cooling
550	22	65	76	26.0	31.0
600	24	75	90	25.5	30.6
650	26	82	104	25.2	30.2
700	28	100	120	25.0	30.0
750	30	110	132	24.0	28.7
800	32	122	146	23.3	27.9

Note: above figures are the general rate for allowable current which differs by operating conditions

AC EAF

Nominal Diameter		CURRENT CAPACITY [kA]		CURRENT DENSITY [A/cm ³]	
[mm]	[inch]	Without Direct Water Spray Cooling	With Direct Water Spray Cooling	Without Direct Water Spray Cooling	With Direct Water Spray Cooling
550	20	41	63	20.0	31.0
550	22	48	70	20.0	29.0
600	24	55	82	20.0	28.0
650	26	69	89	20.0	26.0
700	28	80	100	20.0	25.0

Note: above figures are the general rate for allowable current which differs by operating conditions

STANDARD DIMENSIONS OF GRAPHITE ELECTRODES

Specifications [inch]	Diameter [mm]			Length [mm]		
	Nominal Diameter	Max	Min	Nominal Length	Max	Min
18	450	460	454	1800	1875	1700
				2100	2175	1975
				2400	2475	2275
20	500	511	505	1800	1875	1700
				2100	2175	1975
				2400	2475	2275
22	550	562	556	2100	2175	1975
				2400	2475	2275
24	600	613	607	2100	2175	1975
				2400	2475	2275
26	650	663	657	2400	2475	2275
28	700	714	708	2400	2475	2275
				2800	2850	2550

If there are special specification requirements, both sides consult supply and demand



STANDARD SIZE OF NIPPLES AND SOCKETS

Nominal Electrode Diameter		Thread Designation	[A] Diameter max. [mm]	[L] Length max. [mm]	[S] Depth of socket min. [mm]	Average Weight [kg]	Other Designation			
[mm]	[inch]						IEC*	Diameter [inch]	Length [inch]	
3TPI [inch of thread: 8.467 mm]	450	18	16T3	241.30	338.70	175.30	20.5	N241T3N	9.5	13.33
			16T3L	241.30	355.60	183.80	21.0	N241T3L	9.5	14
			18T3	273.05	355.60	183.80	28.0	N273T3N	10.75	14
			18T3L	273.05	457.20	234.60	34.0	N273T3L	10.75	18
	500	20	18T3	273.05	355.60	183.80	28.0	N273T3N	10.75	14
			18T3L	273.05	457.20	234.60	34.0	N273T3L	10.75	18
			20T3	298.45	372.50	192.20	36.0	N298T3N	11.75	14.66
4TPI [pitch of thread: 6.350 mm]	450	18	18T4	241.30	304.80	158.40	19.0	N241T4N	9.5	12
			18T4L	241.30	355.60	183.80	21.0	N241T4L	9.5	14
			20T4L	269.88	457.20	234.60	33.4	N269T4N	10.625	18
	500	20	20T4	269.88	355.60	183.80	27.2	N269T4N	10.625	14
			20T4L	269.88	457.20	234.60	33.4	N269T4N	10.625	18
	550	22	22T4	298.45	355.60	183.80	35.0	N298T4N	11.75	14
			22T4L	298.45	457.20	234.60	42.5	N298T4L	11.75	18
	600	24	24T4	317.50	355.60	183.80	40.0	N317T4N	12.5	14
			24T4L	317.50	457.20	234.60	48.0	N317T4L	12.5	18
	650	26	26T4	355.60	457.20	234.60	64.0	N355T4N	14	18
			26T4L	355.60	558.80	285.40	74.0	N355T4L	14	22
	700	28	28T4	374.65	457.20	234.60	71.5	N374T4N	14.75	18
			28T4L	374.65	558.80	285.40	84.0	N374T4L	14.75	22

International Electrotechnical Commission
 If there are special specification requirements, both sides consult supply and demand

ELECTRODE AND NIPPLE PACKING

Electrode size mm/inch D x L	Crate size mm/inch L x W x H	Electrodes per Crate	Crates per Container*	Electrodes per Container*
400x1800 [16"x72"]	2125 x 1267 x 500 [83.60"x50.20"x19.60"]	3	16	56
	2125 x 870 x 500 [83.60"x34.20"x19.60"]	2	4	
400 x 2100 [16"x84"]	2450 x 1276 x 500 [96.40"x50.20"x19.60"]	3	8	40
	2450 x 870 x 500 [96.40"x34.20"x19.60"]	2	8	
450 x 1800 [18"x72"]	2200 x 960 x 550 [86.60"x37.80"x21.60"]	2	22	44
450 x 2100 [18"x84"]	2500 x 960 x 565 [98.40"x37.80"x22.20"]	2	16	32

*Considering a 20' container with a maximum payload of 25MT

The electrodes are delivered in wooden rafts strapped with steel bands, the threads and end faces being protected by end cups in order to avoid the risk of damages.







DUFERCO SA

Via Bagutti 9, 6900 Lugano | Switzerland



+41 91 822 56 00



info.refractories@dith.com



www.dithrefractories.com

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