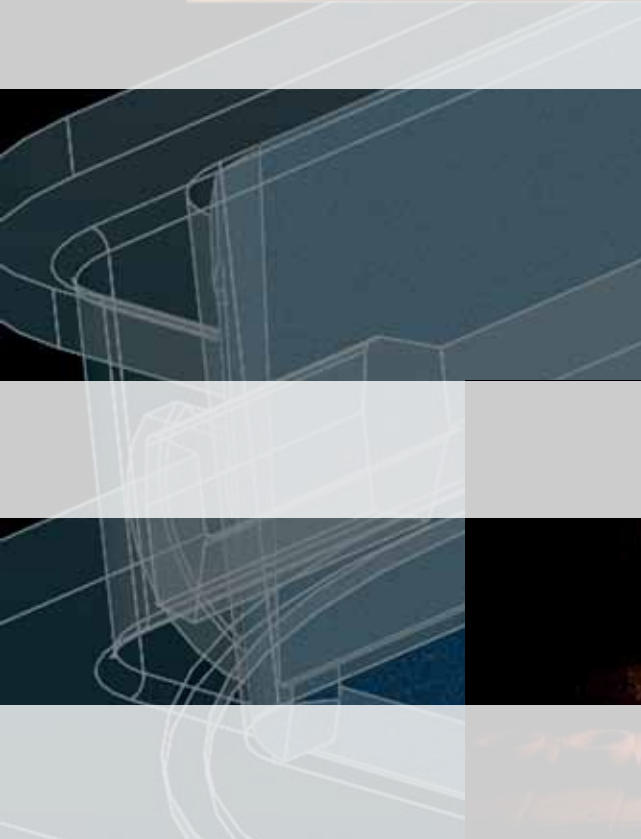


ELECTRODES

FE - ALLOYS





Graphite electrodes are used primarily in electric arc furnace steel manufacturing.

Graphite electrodes can provide high levels of electrical conductivity and capability of sustaining the extremely high levels of generated heat.

Graphite electrodes also used in the refinement of steel and similar smelting processes.

Graphite electrodes are selected based on some of following application considerations:

- FURNACE DESIGN
- SCRAP REQUIREMENT
- CHARGING PRACTICE
- BURNER / OXYGEN USAGE
- WATER SPRAY RINGS
- FUME CONTROL SYSTEM
- MELTDOWN/REFINE/TAP-TO TAP
- POWER RATING



Properties		Unit	UHP		HP	RP
			Φ300-Φ500	Φ550-Φ800	Φ300-Φ800	Φ300-Φ800
Resistivity	Electrode	μΩm	4.8 - 5.8	4.6 - 5.8	5.8 - 6.6	7.0 - 10.0
	Nipple		3.5 - 4.0	3.5 - 4.0	3.5 - 4.0	4.0 - 4.5
Modulus of Rupture	Electrode	Mpa	10.0 - 14.0	10.0 - 14.0	10.0 - 13.0	8.0 - 10.0
	Nipple		20.0 - 24.0	22.0 - 26.0	20.0 - 23.0	19.0 - 22.0
Young's Modulus	Electrode	Gpa	9.0 - 13.0	10.0 - 14.0	8.0 - 12.0	7.0 - 9.3
	Nipple		15.0 - 18.0	16.0 - 19.0	14.0 - 16.0	12.0 - 14.0
Bulk Density	Electrode	g/cm ³	1.68 - 1.74	1.70 - 1.74	1.64 - 1.68	1.53 - 1.56
	Nipple		1.78 - 1.82	1.80 - 1.84	1.75 - 1.80	1.70 - 1.74
CTE (100-600 °C)	Electrode	10-6/°C	1.10 - 1.40	1.10 - 1.40	1.60 - 1.90	2.20 - 2.60
	Nipple	g/cm ³	0.90 - 1.20	0.90 - 1.20	1.10 - 1.40	2.00 - 2.50

APPLICATION Graphite Electrode is an indispensable material used in the electric arc furnace steel making, for its excellent electrical conductivity and remarkable anti-thermal shock capability.

ADVANTAGES

- High temperature Strength
- Excellent thermal and electrical conductivity
- Low thermal expansion
- Appropriate machinability capability conductivity

JOINTING 3 TPI, 4 TPI, and male or female joining systems

Typical analysis of the available ferro- alloys

DESCRIPTION	SIZE (mm)	PACKING	CHEMICAL COMPOSITION		
				min %	max %
FeSi75	50-10 mm	Big Bag	Si	74,00	
	30-80 mm		Al		1,50
	3-10 mm		C		0,20
			P		0,05
			S		0,04
FeMn aff.(MCFeMn)	10-50 mm	Big Bag	Mn	77,00	
	50-100 mm		C		1,50
	1-10 mm		P		0,25
	3-10 mm		Si		1,50
FeMn carb. (HCFeMn)	10-50 mm	Big Bag	Mn	75,00	
	50-100 mm		C	6,00	8,00
	1-10 mm		P		0,25
	3-10 mm		S		0,03
			Si		2,00
FeCr aff.(MCFeCr)	10-50 mm	Big Bag	Cr	65,00	
	50-100 mm		C		1,00
	0,2-0,5 mm		P		0,03
	3-10 mm		S		0,05
	1-10 mm		Si		1,50
	3-6 mm				
FeCr carb.(HCFeCr)	10-50 mm	Big Bag	Cr	66,00	
	50-100 mm		C	6,00	8,00
	3-10 mm		P		0,03
	1-10 mm		S		0,05
	3-6 mm		Si		1,50
Al in granulas	10-40 mm	Big Bag	Al	95,00	
	40-80 mm		Si		1,20
			Cu		0,20
			Mn		0,35
			Na		0,20
			Cu		0,40
			Fe		0,75
FeTi70C1	10-100 mm	Big Bag	Ti	6,50	
			Al	5,80	
			C	0,40	
			Si	1,00	
			V	3,00	
			S	0,03	
			P	0,30	
			O	6,00	
FeV	10-50 mm	Drum	V	78,00	83,00
			Si		1,00
			C		0,25
			P		0,05
			S		0,05
			Al		1,00

