

The Main Information of Graphitized Carbon Electrode

Performance and use:

The graphitized carbon electrode of our company use petroleum coke and coal pitch as a binder agent made through calcining, burdening, kneading, pressing, roasting, graphitization and machining. It is a conductor which releases the electric energy to heat and melt materials in the form of electric arc in an electric arc furnace. The electrode we produce is a graphitized carbon electrode, and is suitable for the mine furnace smelting production of silicon metal, iron alloy, etc.

Product features:

The conventional carbon electrode has high resistivity, low permissible current density and large power consumption per unit product. Compared to which, our product has smaller resistivity and self-consumption, and energy saving during use. At the same time, the graphitized carbon electrode has low ash content (especially when smelting high-purity silicon metal, the content of iron, aluminum, calcium and other elements of the graphitized carbon electrode is much lower than that of the conventional carbon electrode, which is beneficial to improve the quality of silicon) and good oxidation resistance, which can enhance the thermal efficiency of the ore furnace and the output of per unit time, and shorten the smelting time.

Package and transportation:

Store at ventilate and dry place and prevention from water, heat and fire; Handling according to hazardous substances and preven-

tion from exposing to sunlight and rain. Be careful when loading and unloading to avoid damages of the package. During transporting, protect against damp, water, acid and alkali.

Application:

The electrode is an ultra-high temperature conductive material which is mainly used in submerged arc furnaces to produce silicon metal, iron alloy, yellow phosphorus, calcium carbide and so on.

Since the 1980s, with the increasing scale of China's infrastructure construction, industries which use submerged arc furnaces to smelt yellow phosphorus, calcium carbide, ferroalloys, industrial silicon have developed very fast. Especially after the 1990s, the development has become more rapidly. As the final heating treatment temperature of the conventional carbon electrode is about 1100 °C, while the temperature of using submerged arc furnaces to smelt silicon, yellow phosphorus, calcium carbide, iron alloy and fused magnesium is 1800-2200 °C, when reaching the temperature range of 1600-2000 °C, the nitrogen, sulfur and other metal impurities contained in the conventional carbon electrode escape in a gaseous form, a serious "crystal rise" phenomenon will occur which will cause cracks inside the electrode. In severe cases, the block of the electrode may drop or break off during use which will affect the smelting production in the submerged arc furnace. However, this kind of phenomena can be avoided by the graphitized carbon electrode and it can effectively prevent cracks or falling off in the use process.

Technology:

diameter (mm)	Enabled Current loading (A)	Current density (A/cm ²)	Resistivity μΩ.m	Gpamodulus of elasticity Gpa	Volume density g/cm ³	Flexural strength Mpa	compressive strength Mpa	Thermal expansivity 10-6/°C	Ash content %
960	53500	7.4	≤15	≤6	≥1.62	≥6	≥21.0	≤3.8	≤0.5
1020	57900	7.1	≤15	≤6	≥1.62	≥6	≥21.0	≤3.8	≤0.5
1146	72100	7.0	≤15	≤6	≥1.62	≥6	≥21.0	≤3.8	≤0.5
1272	88900	7.0	≤15	≤6	≥1.62	≥6	≥21.0	≤3.8	≤0.5

Note: Other specifications according to contract. It can be customized according to the requirements.