

東海

Tokai

Metallurgical Applications

Industries involved with molten metal processing, in particular Iron, Copper, Aluminium based alloys and Precious metals, use casting and metal treatment techniques that require the use of materials resistant to attack by the molten metal.

These materials also must not affect the final metal composition or deposit any hard particles in the melt that may cause problems during any post machining operations. Graphite is the ideal material to be used in such environments.

Continuous casters use graphite dies that allow the molten metal to be cast to the required shape in one single operation. See separate datasheet.

In the Aluminium industry, graphite is used extensively in all process areas. In the smelting operation graphite is used to conduct electricity in the reduction cell. In the casting process it is used to facilitate degassing, pumping and stirring, ensuring impurity free castings.

Finally, in the production of semi-finished goods, like extruded shapes, graphite is used to ensure the product is made free from surface imperfections such as score marks or scratches.



Typical Application Chart

Typical Applications	Recommended Grades
Degassing Rotors and Shafts	FE250, EE250
Fluxing Tubes	EE200
Pump Parts	G140, G151, EE250
Extrusion Run out Table Parts	FE250, G348
Crucibles	G140
Flow Control Pins	EE200, G151
Electric Furnace Heating Elements	See separate datasheet

Typical Properties for Metallurgical Applications

<i>Grade</i>	<i>Density (g/cm²)</i>	<i>Hardness (Shore)</i>	<i>Flexural Strength (Mpa)</i>	<i>C.T.E (x10⁻⁶/°C)</i>
EE200	1.65	30	19.6	3.3
FE250	1.75	35	24.5	3.3
G140	1.70	23	15.7	3.8
G330	1.79	56	39.2	5.5
G348	1.92	68	63.7	5.5

Post Machining Treatments

A graphical representation of the case study is shown here. Typically, component life can be extended to 3 times that of an untreated component.

The unique GRAPHOX impregnation treatment protects well below the surface of the graphite but has no effect on the dimensions of the component.

Effect on Component Life

