Studies on the Wear Resistivities and Properties of Wear Surfaces of Various Cast Irons having Different Graphite Shapes

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Abstract

The wear resistivities and properties of wear surfaces of various cast iron having different graphite have been studied in case of dry abrasion. In this investigation, the lower specimens are semi-nodular graphite irons of spheroidal and quasi-flake graphites. The upper mated specimens are of various cast irons of different graphite forms, and the wearing test has been carried out till the maximum running distance of 160 km. The results obtained can be summarized as follows:

(1) The amounts of wear are influenced by the combination of both materials. In this investigation, spheroidal and semi-nodular graphite cast irons have the best wear resistivity, flake graphite cast irons have the medium, and eutectic graphite cast irons show the lowest one. The specimens having a little gnawing, reveal a stable wear resistivity.

(2) The roughness of wear surface reveals different curve according to the contact materials, but if the running distance of wearing test increases, the roughness curves of each combined materials approach to a similar one.

(3) The hardness of wear surface increases with running distance, and gradually tends to a constant value. Some minor differences are also observed in the change of hardness for various contact materials.

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