VISVESVARAYA TECHNOLOGICAL UNIVERSITY
BELGAUM

A
PROJECT REPORT
ON

EFFECTS OF ALLOYING ELEMENTS ON THE MICROSTRUCTURES AND MECHANICAL PROPERTIES OF DUCTILE CAST IRON

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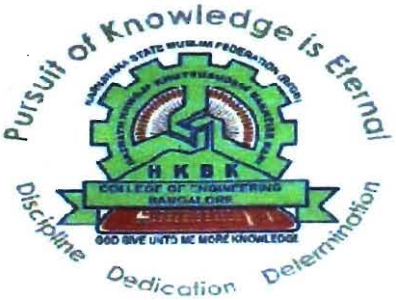

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ABSTRACT

Ductile or S.G. Cast iron is defined as a high carbon containing, iron based alloy in which the graphite is present in compact, spherical shapes rather than in the shape of flakes, the latter being typical of gray cast iron. Because of this the mechanical properties of ductile irons related directly to the strength and ductility of the matrix present—as is the case of steels.

One reason for the phenomenal growth in the use of ductile iron castings is the high ratio of performance to cost that they offer the designer and end user. This high value results from many factors, one of which is the control of microstructure and properties that can be achieved in the as-cast condition, enabling a high percentage of ferritic and pearlitic structure. Ductile cast iron exhibits good ductility and toughness because the graphite morphology is spherical. The **effects of alloying elements on the microstructures and mechanical properties of ductile cast iron** were investigated. The small additions of Mo, Cu, Ni and Cr changed the as-cast mechanical properties owing to the different as-cast matrix microstructure.