

Duracast[®] DC17 Chrome White Iron



Overview

Duracast DC17 is a white cast iron commonly used in mining applications that experience severe wear. This product combines the abrasion resistance of alloyed white iron with the ability to cast custom shapes to form a unique wear solution for varied applications.

Manufacture

The Duracast DC17 castings are produced by Bradken's in-house foundries. An automated moulding machine allows for high volume, low-cost manufacturing. Custom shapes can be cast to solve complex wear problems and to allow for attachment methods such as fish-tail liner bolts. A heat treatment process is used to maximise its wear resistance.

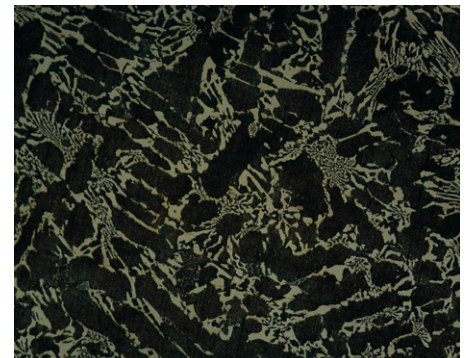
Composition

The Duracast DC17 cast material belongs to the *high chromium abrasion-resistant cast iron* alloys designated by Australian Standard – AS 2027–2007. The major alloying elements, chromium, carbon and molybdenum, give this material its superior abrasion resistant properties. A typical chemical composition is given below:

Carbon	2.4%–3.6%
Silicon	0.2%–1.0%
Manganese	0.5%–1.5%
Chromium	14.0%–18.0%
Molybdenum	1.2%–3.4%



Duracast DC17 Casting Manufacturing



Duracast DC17 Microstructure

Microstructure

The microstructure of Duracast DC17 is crucial in providing superior wear performance. The heat treatment cycle transforms the softer as-cast microstructure into hard, wear resistant material. This microstructure consists of a network of interconnected eutectic M_7C_3 carbides in a martensitic matrix.

Typical Properties

Bulk Hardness	600–750 HV ₅₀
Carbide Hardness	≥1200 HV _{0.5}
Volume Fraction of Carbides	25%–30%
Density	7500 kg/m ³



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