

Duracast[®] DC17 Cast White Iron

Overview

Duracast DC17 is a premium Chrome-Molybdenum cast white iron commonly used in mining applications that experience severe wear from sliding abrasion. This material has been refined by Bradken to maximise the abrasion & impact resistance of the white iron whilst maintaining its ability to be cast into custom complex shapes to form a unique wear solution for various mineral processing applications.

Manufacture

The Duracast DC17 castings are produced by Bradken to our strict specification. Automated moulding machines allow for accurate, high-volume & low cost production. Custom shapes can be cast to solve complex wear problems and to allow for various attachment methods such as oval head liner bolts. Controlled heat treatment processes are used to maximize the wear resistant properties of casting whilst minimising residual stress for improved impact resistance.

Composition

Although Duracast DC17 is produced to Bradken's specification; it is compliant with the requirements of ISO21988/JN/HBW555Cr16 for chrome-molybdenum white iron and can be used a direct replacement for this material. The major alloying elements chromium, carbon and molybdenum provide Duracast DC17 its superior material properties. The exact chemical composition range is propriety; however a typical chemical composition range for comparison is provided 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%

Microstructure

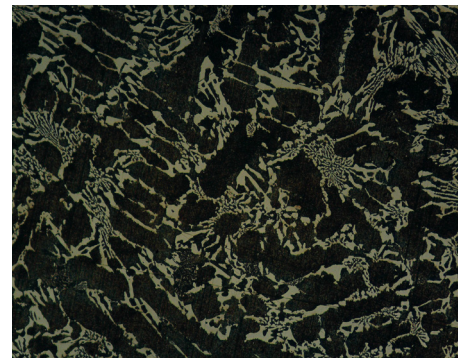
The microstructure of Duracast DC17 is crucial in providing superior wear performance. The heat treatment cycle, developed in conjunction with research partners, transforms the softer as-cast microstructure into hard, wear resistant material. This microstructure consists of a network of interconnected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

Typical Properties

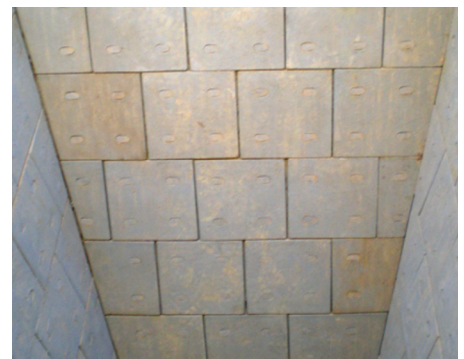
Bulk Hardness	600–750 HV ₅₀
Carbide Hardness	≥1200 HV _{0.5}
Volume Fraction of Carbides	25%–30%
Density	7750 kg/m ³



Duracast DC17 Casting Manufacturing



Duracast DC17 Microstructure



Duracast DC17 Lined Chute



Our Innovation. Your Advantage.

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