

# Duablock® Bi-Metallic White Iron

## Overview

Duablock is a composite material used in mineral processing applications experiencing high impact and severe abrasive wear. This product consists of a white iron casting diffusion bonded to a steel backing plate. Duablock's wear resistant microstructure, along with its impact absorbing weldable backing plate, makes it perfect for high abrasion and high impact applications.

## Manufacture

The Duablock castings are produced by Bradken to our strict specification. Automated moulding machines allow for accurate, high-volume & low cost production. The Duablock casting is diffusion bonded to a mild steel backing plate inside of a vacuum furnace to form a true metallurgical bond and provide Duablock its impact resistance base. A highly controlled heat treatment process is used to maximize the wear resistant properties of casting whilst minimising residual stress for further improved impact resistance.

## Composition

The Duablock casting is produced to Bradken's strict material specification; The major alloying elements chromium, carbon and molybdenum provide the Duablock castings its superior abrasion resistant properties. The exact chemical composition range is propriety; however a typical chemical composition range for comparison is provided below:

Carbon	2.6%–3.4%
Silicon	0.2%–1.0%
Manganese	0.5%–1.2%
Chromium	14.0%–18.0%
Molybdenum	1.5%–3.0%

## Microstructure

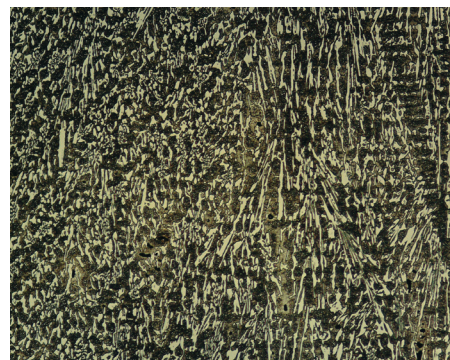
The microstructure of the Duablock casting is crucial in providing superior wear performance. The tightly controlled heat treatment cycle, transforms the softer as-cast microstructure into hard, wear resistant material. This microstructure consists of a network of interconnected eutectic M<sub>7</sub>C<sub>3</sub> carbides in a martensitic matrix.

## Typical Properties

Bulk Hardness	650–750 HV <sub>50</sub>
Carbide Hardness	≥1200 HV <sub>0.5</sub>
Volume Fraction of Carbides	25%–30%
Density	7500 kg/m <sup>3</sup>



*Duablock Manufacturing Process*



*Duablock Microstructure*



*Duablock Lined Chute*



**Our Innovation. Your Advantage.**

BK Sales & Marketing Global Record Flyer Duablock Bi-Metallic White Iron BRADKEN® REV1 29/07/2022  
All company names, logos, and identifying marks used throughout this publication are the property of their respective trademark owners, they are used for descriptive purposes only.

