

# Duracast<sup>®</sup> N460 Chrome White Iron

## Overview

Duracast N460 is a Chrome-Nickel cast white iron with a long history as a high performing, low-cost abrasion resistant material for mineral processing applications. commonly used in mining applications that experience severe wear from sliding abrasion. Duracast N460 owes its excellent wear and impact resistant to its alloying elements and microstructure. Duracast N460 can be cast in blocks, billets, liner plates and custom shapes.

## Manufacture

The Duracast N460 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 N460 is produced to Bradken's specification; it is compliant with the requirements of ISO21988/JN/HBW555Cr9 for white iron; commonly referred to as Nihard 4. The major alloying elements chromium, carbon and Nickel provide Duracast N460 its excellent abrasion resistant properties. The exact chemical composition range is propriety; however a typical chemical composition range for comparison is provided below:

Carbon	3.0%–3.6%
Silicon	1.5%–2.5%
Manganese	0.3%–0.8%
Chromium	8.0%–10.0%
Nickel	4.5%–6.5%

## Microstructure

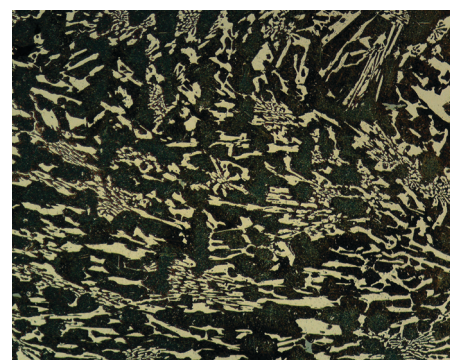
The microstructure of Duracast N460 is crucial in providing good wear performance. After casting, a heat treatment process is used to transform the softer as-cast microstructure into hard, long-lasting wear resistant material. This microstructure consists of eutectic M7C3 carbides in a predominately martensitic matrix.

## Typical Properties

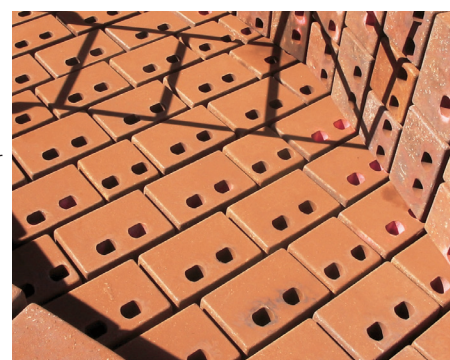
Bulk Hardness	600–700 HV <sub>50</sub>
Carbide Hardness	≥1100 HV <sub>0.5</sub>
Volume Fraction of Carbides	20%–25%
Density	7750 kg/m <sup>3</sup>



*Duracast N460 Manufacturing Process*



*Duracast N460 Microstructure*



*Duracast N460 Billets in a transfer chute*



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