

The Davy Roll Company Limited

Description

STELLA - Oxide Stabilised High Chromium Iron, Double Pour, Nodular Core

This is a grade of High Chrome Iron with a manufacturing process designed to reduce the oxidation or scaling of the roll surface, in service. In normal operation, High Chromium Iron Work Rolls used in the early finishing stands of a hot strip mill will quickly build up a heavy black oxide scale. The campaign progresses rolling on this scale until eventually it begins to break away. Ultimately, heavy peeling or banding renders the surface rough and uneven and the discarded scale can become rolled into the strip.

Roll changes are often scheduled in a plan to avoid the full development of this cycle and avoid the poor results associated with banded rolls.

The Steel roll exhibits much slower oxidation and scale build up during rolling. A thinner oxide layer results, which is also more stable and less prone to peeling. When it breaks away, the underlying roll damage is less severe.

The effect is an improved surface for rolling throughout the campaign with less threat of scale being rolled into the strip after peeling from the roll. With less scaling and less underlying roll damage, the dressings can be smaller leading to improved roll life. Longer campaigns also become possible.

This grade of High Chrome Iron shares all of the other advantages of the standard material, including the very level hardness gradient from new to discard. The core material for Stella High Chrome Iron will be of nodular iron, which provides greater mechanical strength, which is important in mills using roll bending and shifting.

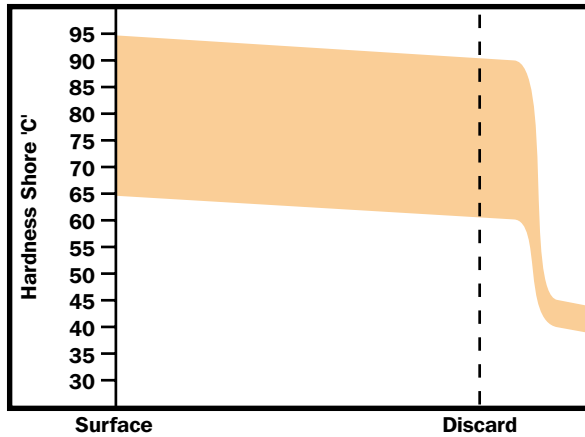
Applications

Product	Type of Mill	Position
Plate	4 High	Work Rolls
Wide Strip	4 High	Roughing/Finishing

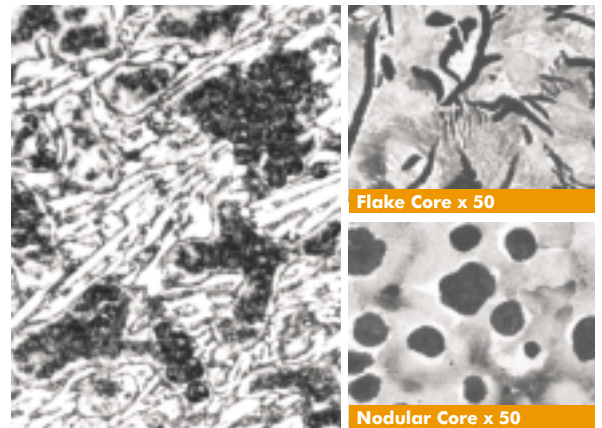
Typical Mechanical Properties

Property	N/mm ²		
	Barrel	Journals & Axis	
		Flake Core	Nod. Core
Tensile Strength	850	240	425
Bending Strength	1300	350	835

Typical Hardness Gradient



Micrograph (Shell x500)



Typical Analysis

Code	Leeb E	Shore C	C	Si	Mn	Ni	Cr	Mo
HC	680-845	65-95	2.4/3.0	0.5/1.1	0.7/1.5	0.7/1.5	14/20	0.7/3.5

