

## The Davy Roll Company Limited

### Description

#### Double Pour, Nodular Core

Developed for use as work rolls in the early finishing stands of hot strip mills, High Chrome rolls are centrifugally cast double poured and consist of a shell which is essentially a high chromium white iron with journals and barrel axis of cast iron.

This type of shell material combines very good wear properties with an excellent resistance to fire cracking and banding, and also has good hot hardness characteristics. Thus the rolls are very resistant to both surface deterioration and damage in service leading to high tonnage output, good stock finish and extended mill availability.

The structure of the shell metal consists of discontinuous primary chromium carbides in a matrix which is normally acicular with fine globular carbides. In softer rolls some pearlite may be present.

High chrome rolls have also proved to be very successful as cold mill work rolls as they offer a number of advantages. As well as their excellent grip properties which greatly facilitate 'threading' of the mill, High Chrome rolls have much higher wear resistance which leads to higher tonnage outputs. Other factors are that High Chrome rolls show little fall off in hardness to discard so that expensive re-hardening is not required. Their lower residual stress and relatively high toughness make the rolls much more resistant to damage from mill incidents.

High Chrome rolls for cold mills can be supplied with a hardness of up to 95° Shore C.

The core material for any Double Poured High Chrome roll will be nodular iron achieves greater mechanical strength. The extra strength provided has become increasingly important in mills using work roll bending and shifting systems.

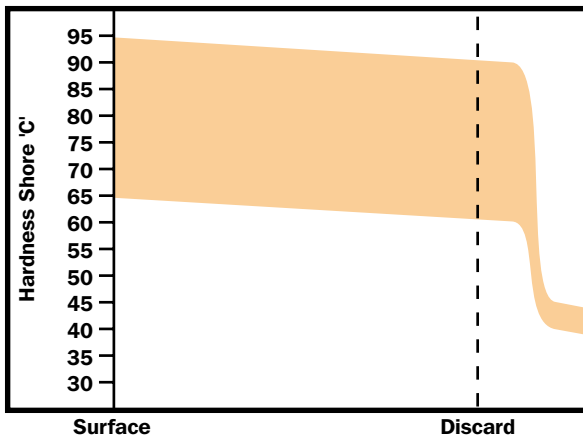
### Applications

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

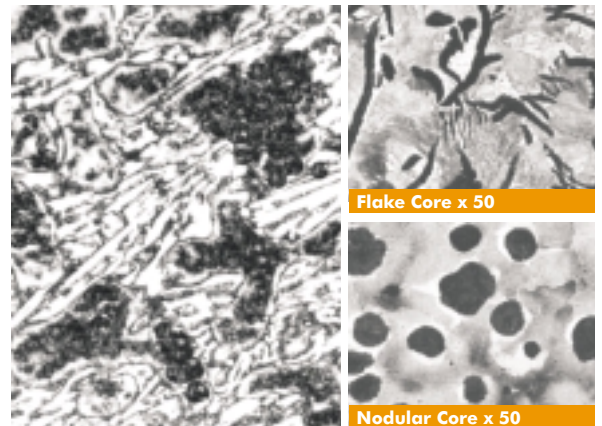
### Typical Mechanical Properties

Property	N/mm <sup>2</sup>		
	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

