

# MICRA

*Enhanced Indefinite Chill*

## Chemical composition

	C	Si	Mn	Mo	Cr	Ni	W, V, Nb
<b>MICRA</b>	<b>3.0</b>	<b>0.5</b>	<b>0.5</b>	<b>0.2</b>	<b>1.5</b>	<b>4.0</b>	<b>1-4</b>
	<b>4.0</b>	<b>1.5</b>	<b>1.6</b>	<b>0.8</b>	<b>2.5</b>	<b>5.0</b>	
ICRA	3.0	0.5	0.5	0.2	1.5	4.0	<0.5
	4.0	1.5	1.6	0.8	2.5	5.0	
CRONA	2.0	0.6	0.8	1.0	15.0	1.0	<0.5
	3.0	1.0	1.2	1.5	20.0	1.5	
CICRA	2.0	0.7	1.0	1.0	15.0	1.0	1-2
	3.0	0.8	1.2	1.5	20.0	1.5	
SPECRA F	1.0	0.5	0.5	2.0	3.0	0.5	2-8
	2.0	1.0	1.5	5.0	7.0	1.5	

## Properties

Hardness Range	Le	720-755 740-770 745-780
Tensile strength	(MPa)	375
Thermal conductivity	(W/m x K)	20
Thermal exp. coeff. (20-100C)	(1/Kx10 <sup>-6</sup> )	12
Young's modulus	(GPa)	185
Poisson's ratio	-	0,31
Density	(kg/m <sup>3</sup> )	7500
Specific heat	(J/kg x K)	500

## Comparative properties

	Wear resistance	Fire crack resistance	Oxidation behaviour	Product surface
<b>MICRA</b>	—	—	—	—
ICRA	—	—	—	—
CRONA	—	—	—	—
CICRA	—	—	—	—
SPECRA F	—	—	—	—

## Description

Double poured indefinite chill iron with carbide additions produced by the vertical spin casting process.

The microstructure consists of a bainitic/martensitic matrix with Fe<sub>3</sub>C-carbides, free graphite flakes and homogenously distributed MC-carbides.

The roll is heat treated at low temperatures to obtain favourable stress levels and the required hardness range.

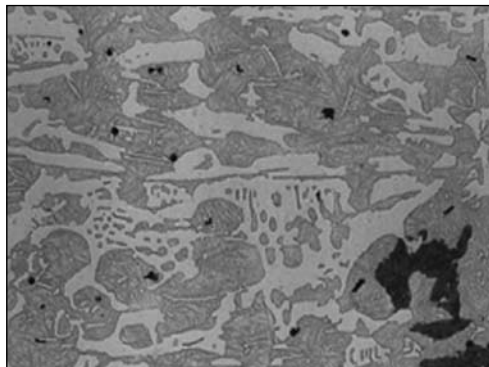
### CORE MATERIAL

Standard flake iron (FG), high strength flake iron (HS) or nodular iron (SG).

(Properties displayed in a separate product data sheet.)

## Applications

Work rolls for the late finishing stands F4-6(7) of conventional HSM or Steckel mill finishing stands.



Microstructure MICRA

## Features & Benefits

- Very good wear resistance in combination with good operation safety.
- The material properties provide good resistance against thermal and mechanical impacts due to rolling incidents.
- The characteristic hardness drop of Indefinite Chill rolls is minimized by the manufacturing process.