



# CICRA

## Enhanced High Chrome Iron

### Chemical composition

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

### Properties

Hardness	Ld (ShC)	765-815 (75 – 85)
Tensile strength	(MPa)	700
Thermal conductivity	(W/m x K)	19
Thermal exp. coeff. (20-100C)	(1/Kx10-6)	13,5
Young's modulus	(GPa)	220
Poisson's ratio	–	0,31
Density	(kg/m <sup>3</sup> )	7600
Specific heat	(J/kg x K)	450

### Comparative properties

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

### Description

Double poured high chrome iron with carbide additions produced by the vertical spin casting process.

The microstructure consists of a tempered bainitic/martensitic matrix with Cr<sub>7</sub>C<sub>3</sub>-carbides and homogenously distributed MC-carbides.

The roll is heat treated at elevated temperatures to obtain optimum material properties, favourable stress levels and homogeneous hardness.

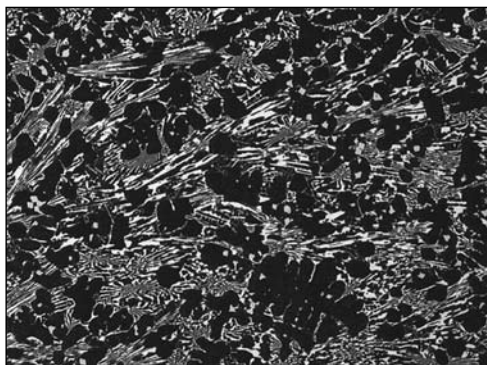
#### CORE MATERIAL

Nodular iron (SG).

(Properties displayed in a separate product data sheet.)

### Applications

Work rolls for the early finishing stands F1-3(4) of conventional HSM.



Microstructure CICRA.

### Features & Benefits

- Excellent wear resistance in combination with good operation safety.
- Very good fire crack resistance and consistent oxidation properties at elevated temperatures.
- Constant material properties throughout the usable shell.