

#### Product Data HOT STRIP MILL WORK ROLLS

# CICRA

## Enhanced High Chrome Iron

#### Chemical composition

	С	Si	Mn	Мо	Cr	Ni	W, V, Nb
CICRA	2.0 3.0	-	-	-	15.0 _ 20.0	-	1-2
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	-0.0
MICRA	3.0	0.5	0.5	0.2	1.5	4.0	1_4
	4.0	1.5	1.6	0.8	2.5	5.0	1-4
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	<b>NO.0</b>
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	20

#### 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/m³)	7600
Specific heat	(J/kg x K)	450

### Comparative properties

	Wear resistance	Fire crack resistance	Oxidation behaviour	
CICRA		—	-	-
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  $Cr_7C_3$ -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.

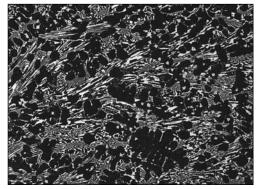
#### CORE MATERIAL

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.

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