Union Electric Åkers
Forged and Cast Rolls

Product Data
HOT STRIP MILL WORK ROLLS

CICRA
Enhanced High Chrome Iron

Chemical composition

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

Properties

Hardness Range	Le	740-780
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^3)	7600
Specific heat	(J/kg x K)	450

Comparative properties

	Wear resistance	Fire crack resistance	Oxidation behaviour	Product surface
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.

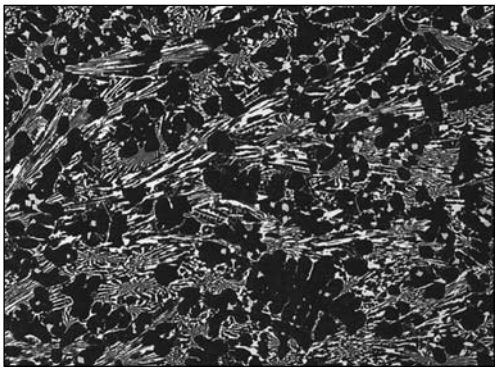
The roll is heat treated at elevated temperatures to obtain optimum material properties, favourable stress levels and homogeneous hardness.

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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