Union Electric Åkers
Forged and Cast Rolls

Product Data
PLATE MILL ROLLS

URMA
High Chrome Steel

Chemical composition

	C	Si	Mn	Mo	Cr	Ni	W, V, Nb
URMA	**1.0 – 2.0**	**0.7 – 0.8**	**0.5 – 1.5**	**0.2 – 0.8**	**10.0 – 14.0**	**0.5 – 1.5**	**0.2 – 0.6**
ICRA	3.0 – 4.0	0.5 – 1.5	0.5 – 1.6	0.2 – 0.8	1.0 – 2.0	3.0 – 4.0	<0.5
MICRA	3.0 – 4.0	0.5 – 1.5	0.5 – 1.6	0.2 – 0.8	1.0 – 2.0	3.0 – 4.0	1-4
CRONA	2.3 – 3.0	0.6 – 1.0	0.8 – 1.2	1.0 – 1.5	15.0 – 20.0	1.0 – 1.5	0.2 – 0.6
CICRA	2.2 – 2.9	0.7 – 0.8	1.0 – 1.2	1.0 – 1.5	15.0 – 20.0	1.0 – 1.5	1-2

Properties

Hardness Range	Le	715-745
Tensile strength	(MPa)	850
Thermal conductivity	(W/m x K)	16
Thermal exp. coeff. (20-100C)	(1/Kx10-6)	10
Young's modulus	(GPa)	220
Poisson's ratio	–	0,28
Density	(kg/m^3)	7600
Specific heat	(J/kg x K)	490

Comparative properties

	Wear resistance	Fire crack resistance	Toughness	Product surface
URMA	▬	▬	▬	▬
ICRA	▪	▬	▬	▬
MICRA	▬	▬	▬	▬
CRONA	▬	▬	▬	▬
CICRA	▬	▬	▬	▬

Description

Double poured high chrome steel produced by the vertical spin casting process.

The microstructure consists of a tempered bainitic/martensitic matrix with Cr_7C_3 -carbides.

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

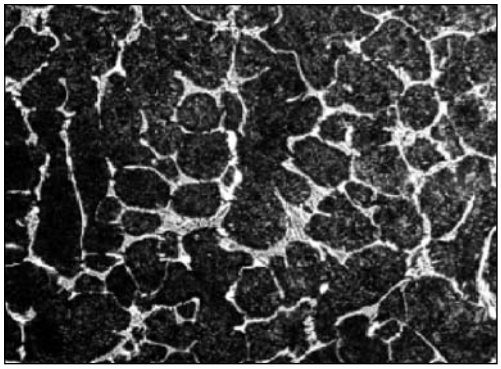
CORE MATERIAL

Nodular iron (SG).

(Properties displayed in a separate product data sheet.)

Applications

Work roll for the roughing stand of double stand plate mills.



Microstructure URMA

Features & Benefits

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

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