CATEGORY:
CAST ROLL

APPLICATION:
HOT STRIP MILL WORK ROLLS

Union Electric Åkers
Forged and Cast Rolls
™

VICTURA™

TwinAlloy™ Steel

Description

Double poured TwinAlloy™ Steel manufactured by the vertical spin casting process.

The TwinAlloy technology concept represents a series of forged and cast roll materials developed by Union Electric Åkers aiming to bring breakthrough improvements in terms of performance and Total Cost of Ownership.

The TwinAlloy materials characteristic is developed by combining cast and forged alloy design philosophies with further refined and modified process technologies.

The VICTURA™ roll material designed for hot rolling, late finishing stand applications combines the High Speed Steel SPECRA™ and enhanced ICDP MICRA™/APEX™ technologies introducing even more MC-type carbides. The microstructure consists of a tempered bainitic/martensitic matrix with a large amount of homogeneously distributed MC-type carbides and cementite, and free graphite nodules.

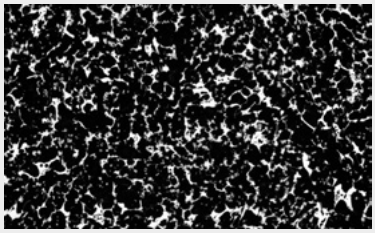
By adapting high alloy tool steel based carbides to an iron-based graphite morphology, the campaign lengths of early (HSS) and late finishing stands can be closely matched. The combination of MC carbides and the microstructure develops excellent oxidation characteristics which promote extended rolling campaigns.

Core Material

Nodular iron (SG). (Properties displayed in separate product data sheet.)

Applications

Work rolls for late finishing stands F4-(6)7 of conventional Hot Strip Mills or Steckel Mills finishing stands.



Microstructure VICTURA™

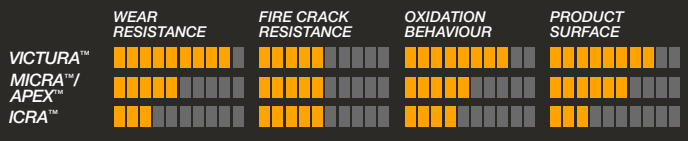
Features & Benefits

- Superior wear resistance in combination with good operation safety.
- Breakthrough 50-100% performance improvement compared to enhanced ICDP roll grades such as MICRA™ or APEX™.
- Excellent surface quality.

CHEMICAL COMPOSITION

	C	Si	Mn	Mo	Cr	Ni	W,V,Nb
VICTURA™	3.0-4.0	0.9-1.9	0.5-1.6	1.0-3.0	1.0-4.0	3.0-6.5	3.0-9.5
MICRA™/ APEX™	3.0-4.0	0.5-1.5	0.5-1.6	0.2-0.8	1.5-2.5	4.0-5.0	1.0-4.0
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

COMPARATIVE PROPERTIES



PROPERTIES

Hardness	Ld (ShC)	786-829 (77-85)
Tensile Strength	MPa	430
Young´s modulus	GPa	181
Thermal Conductivity	W/[m x K]	18.6 (50°C) 21.4 (200°C)
Thermal Exp. Coeff.	1/Kx10-6	13.4 (50°C) 17.2 (200°C)
Poisson's Ratio	-	0.31
Density	kg/m^3	7 420
Specific Heat	J/[kg x K]	476 (50°C) 532 (200°C)