

Forged Steel Roll Specifications

GRADE: 5CRDH



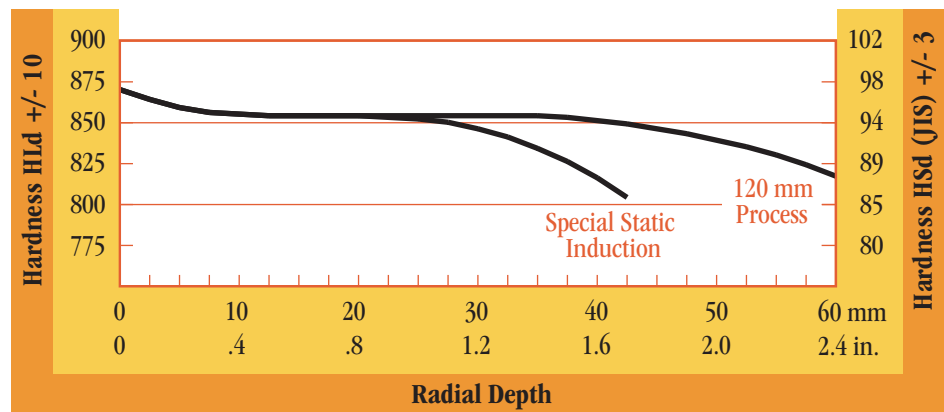
DESCRIPTION

This high alloy work roll material is used in all types of ferrous and nonferrous cold mill roll applications. The product characteristics that dictate enhanced roll performance (microstructure, depth of hardness and residual stress) are optimized by the full coil static induction hardening method that is unique to *Union Electric Åkers*. Grade 5CRDH must be melted by the ESR (electroslag remelt) ingot process. This roll material allows for the most aggressive special static induction heat treatment procedures available resulting in the highest material quality, deepest hardened roll available in the world today. This roll technology has proven to be the highest performing roll for temper and tandem cold rolling applications.

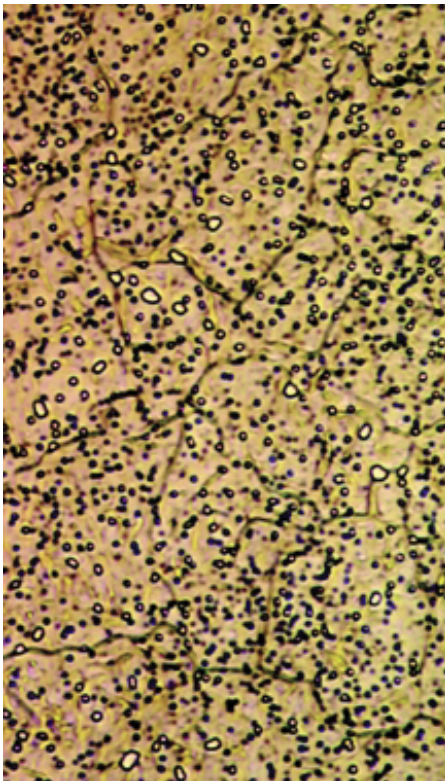
AIM CHEMISTRY (WT%)

C	Mn	P	S	Si	Cr	Mo	V
.81	.37	.015 max	.012 max	.40	5.12	.48	.06

DEPTH OF HARDNESS



MICROSTRUCTURE



1500X

HEAT TREATMENT CAPABILITY

Decrease from Initial Surface Hardness (Radial Depth)

Hardening Method	20/30 HLd 4/6 HSd (JIS)	40/50 HLd 8/10 HSd (JIS)
Special Static Induction*	1.20" (30 mm)	1.50" (38 mm)
120 mm Process*	2.00" (51 mm)	2.40" (61 mm)

*Cryogenic treatment utilized in this method.

TYPICAL CARBIDE ANALYSIS

Carbide Type	Carbide Hardness (HV)	Surface Area (%)	Average Diameter (μ)	Carbide Density (Carbide/mm ²)
M ₇ C ₃	1200-1600	10 - 11	.6	4.3 x 10 ⁵