

Forged Steel Roll Specifications

GRADE: 5CRMO



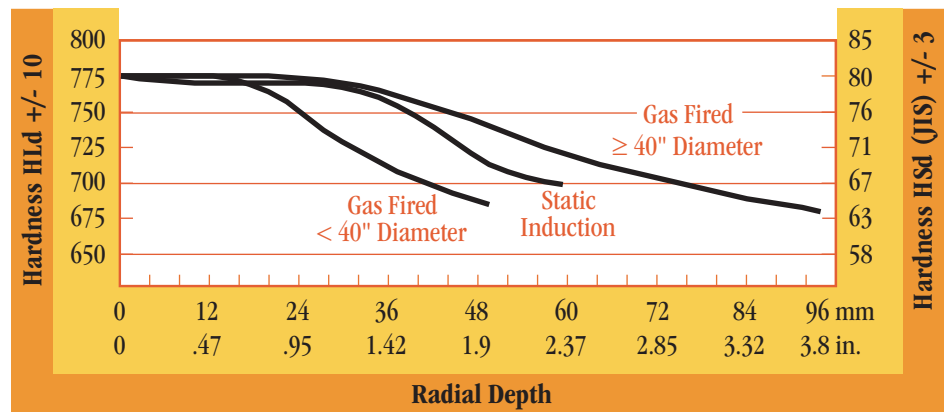
DESCRIPTION

This high alloy roll material was developed for two general types of mill applications, hot nonferrous work rolls and hot/cold mill back-up rolls. The “high” temperature properties of this alloy are designed to enhance both the thermal fatigue strength and resistance to thermal shock in a hot mill environment. The 5CRMO alloy has earned worldwide acceptance as the standard alloy of choice for hot nonferrous work rolls. The 5CRMO alloy should also be specified for both hot and cold mill back-up roll applications that require optimum fatigue strength and wear resistance. In back-up roll applications requiring greater than 4" (100 mm) total roll life, Grade 5CRMO should be specified.

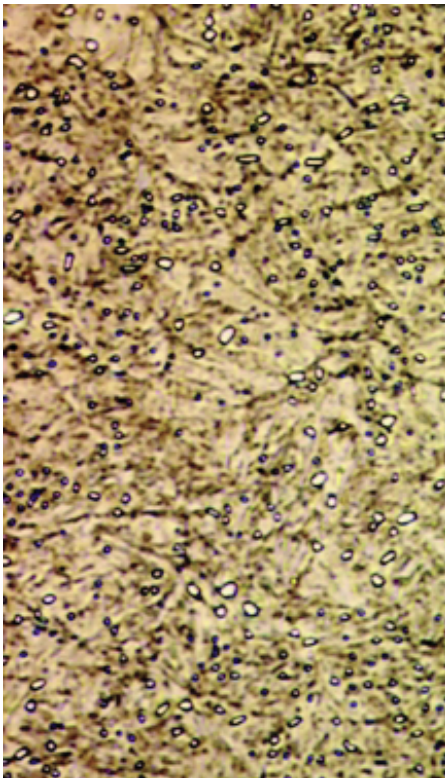
AIM CHEMISTRY (WT%)

C	Mn	P	S	Si	Cr	Mo	V
.50	.27	.015 max	.012 max	.37	5.12	.53	.06

DEPTH OF HARDNESS



MICROSTRUCTURE



1500X

HEAT TREATMENT CAPABILITY

Decrease from Initial Surface Hardness (Radial Depth)

Hardening Method	10/20 HLd	50/60 HLd
	2/4 Hsd (JIS)	10/12 Hsd (JIS)
Static Induction - Small Diameter	1.30" (33 mm)	1.90" (48 mm)
Gas Fired - < 40" (1000 mm)	0.80" (20 mm)	1.30" (33 mm)
Gas Fired - ≥ 40" (1000 mm)	1.50" (38 mm)	2.40" (61 mm)

TYPICAL CARBIDE ANALYSIS

Carbide Type	Carbide Hardness (HV)	Surface Area (%)	Average Diameter (μ)	Carbide Density (Carbide/mm ²)
M ₇ C ₃	1200-1600	7 - 8	.8	1.5 x 10 ⁵