ROLL MATERIAL DATA SHEET

Semi-High Speed Steel

GRADE

Semi-HSS

01 FIELD OF APPLICATION

Mill Type	Position
Hot Strip Mill	Roughing Stands Work Roll

02 MECHANICAL PROPERTIES

HARDNESS RANGE	TENSILE STRENGTH	BENDING STRENGTH	YOUNG'S MODULUS
75-85 ShC	> **700** MPa	> **1200** MPa	approx. **225,000** MPa

Semi-HSS grade is characterized by a high alloy content and low carbon level, a metallurgical combination that reduces the primary carbide network to enhance fire crack resistance. Specialized carbide-forming elements promote a highly wear-resistant microstructure, consisting of M_7C_3, M_2C, $M_{23}C_6$ and MC carbides homogeneously precipitated across a tempered martensitic and bainitic matrix.

Consequently, rolls produced from this grade deliver excellent wear resistance, a smooth surface finish, and high thermal fatigue resistance. These properties allow for extended rolling campaigns, thereby reducing roll-change frequency and boosting overall mill productivity. Furthermore, this specific grade is highly beneficial in applications requiring enhanced roll grip.

RODUCT HIGHLIGHTS

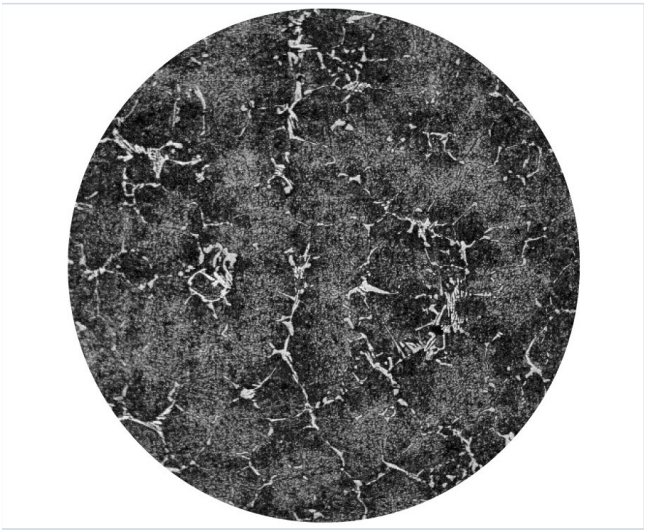
- Excellent wear resistance
- Excellent smooth surface
- Good fire cracking resistance and oxidation resistance
- Constant material properties during service life
- Best grip behavior



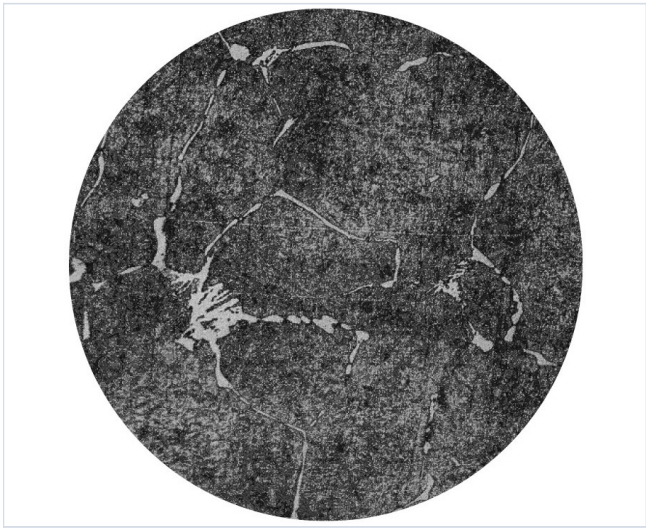
03 CHEMICAL COMPOSITION

wt. %	C	Mn	Si	P	S	Ni	Cr	Mo	V	W
Min	0.80	0.30	0.50	0	0	0.80	4.00	3.00	3.00	1.00
Max	1.35	0.80	1.00	0.050	0.050	1.50	7.00	5.50	5.50	2.00

04 MICROSTRUCTURE



■ *100 X – etched*



■ *400 X – etched*

05 HARDNESS PENETRATION CURVE (SHELL – INTERFACE – CORE)

