ROLL MATERIAL DATA SHEET

High Chrome Steel

GRADE

HiCr-Steel

01 FIELD OF APPLICATION

Mill Type	Position
Hot Strip Mill	Roughing Stands
Plate Mill	Roughing Stands
Steckel Mill	Roughing Stands

02 MECHANICAL PROPERTIES

HARDNESS RANGE	TENSILE STRENGTH	BENDING STRENGTH	YOUNG'S MODULUS
70-80 ShC	> **700** MPa	> **1200** MPa	approx. **210,000** MPa

These rolls are typically manufactured using the centrifugal cast double-poured method, with a nodular iron core. The microstructure of these wear resistant chrome alloys contains a network of eutectic M_7C_3-type chrome carbides within a martensitic or pearlitic matrix, as well as finely dispersed secondary carbides.

Due to the special structure of the chromium carbides, these chrome alloys exhibit superior mechanical strength and toughness compared to other carbide-containing materials. Additional advantages include excellent thermal resistance.

The amount of chromium carbides in the microstructure can vary significantly. Increasing the amount of chromium carbides enhances wear resistance, though results in decreasing toughness and mechanical strength. The hardness decrease from the surface remains negligible.

PRODUCT HIGHLIGHTS

- Excellent wear resistance and oxidation resistance
- Constant material properties during service life
- Good thermal crack resistance



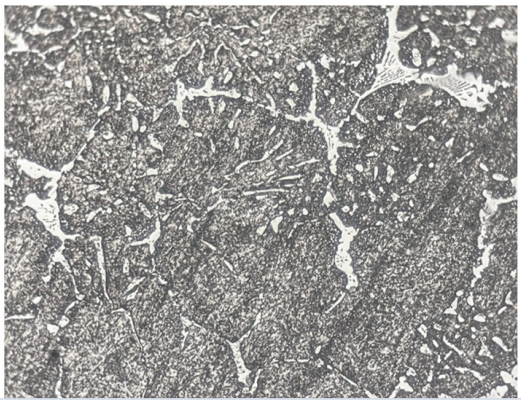
03 CHEMICAL COMPOSITION

wt. %	C	Mn	Si	P	S	Ni	Cr	Mo	V	W
Min	1.20	0.40	0.40	0	0	1.00	11.00	0.50	0	0
Max	2.50	1.40	1.20	0.10	0.050	3.00	20.00	2.50	1.00	1.00

04 MICROSTRUCTURE



■ *100 X – etched (Nital)*



■ *400 X – etched (Nital)*

05 HARDNESS PENETRATION CURVE (SHELL – INTERFACE – CORE)

