ROLL MATERIAL DATA SHEET

Carbide Enhanced Indefinite Chill Double Poured

GRADE

CE-ICDP

01 FIELD OF APPLICATION

Mill Type	Position
Hot Strip Mill	Late Finishing Stands Work Roll
Narrow Strip Mill	Late Finishing Stands Work Roll
Steckel Mill	Work Roll
Plate Mill	Work Roll

02 MECHANICAL PROPERTIES

HARDNESS RANGE	TENSILE STRENGTH	BENDING STRENGTH	YOUNG'S MODULUS
73-83 ShC	> **400** MPa	> **700** MPa	approx. **170,000** MPa

The microstructure of standard indefinite chill double poured (ICDP) typically consists of M_3C type eutectic carbides and free graphite embedded in a tempered martensitic/bainitic matrix. This alloy is characterized by its good wear resistance and excellent resistance towards mill accidents.

Enhanced ICDP rolls are further alloyed with special carbide forming elements such as niobium, vanadium or molybdenum, which encourage the formation of hard MC type carbides. These carbides are finely dispersed within the martensitic matrix, cementite (Fe_3C) and free graphite.

The presence of these special carbides significantly improves wear resistance compared to the standard grades and minimizes the typical drop in conventional ICDP rolls.

The amount of free graphite can be adjusted to meet specific mill requirements through controlled inoculation practices. This enables the production of tailor-made rolls for individual mills.

PRODUCT HIGHLIGHTS

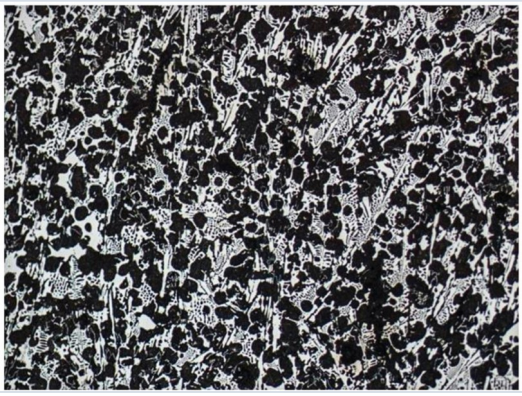
- Good wear resistance
- Very small drop in hardness during roll life
- Good Fire Cracking Resistance
- Insensitive to rolling mill accidents



03 CHEMICAL COMPOSITION

wt. %	C	Mn	Si	P	S	Ni	Cr	Mo	Nb + V + W
Min	2.80	0.50	0.50	0	0	3.00	1.00	0.30	0.30
Max	3.50	1.30	1.50	0.10	0.050	5.00	2.00	3.00	4.00

04 MICROSTRUCTURE



■ *100 X – etched (Nital)*



■ *100 X – unetched*

05 HARDNESS PENETRATION CURVE (SHELL – INTERFACE – CORE)

