ROLL MATERIAL DATA SHEET

Graphitic Steel

01 FIELD OF APPLICATION

Mill Type	Position
Rail, Heavy and Medium Section Mills	Roughing and Intermediate Stands and Universal Rings
Small Section Mills	Roughing Stands
Bar and Rebar Mills	Roughing Stands

02 MECHANICAL PROPERTIES

HARDNESS RANGE	TENSILE STRENGTH	BENDING STRENGTH	YOUNG'S MODULUS
45-60 ShC	**450-650** MPa	**800-1300** MPa	approx. **190,000** MPa

Graphitic steel rolls are classified as hyper-eutectoid steels with a microstructure consisting of a pearlitic matrix, carbides, and nodular or compact graphite. These grades are subjected to a normalization heat treatment, during which, fine secondary carbides precipitate within the matrix, and thereby improving wear resistance. Furthermore, the presence of free graphite enhances fire crack resistance. Hardness drop through the depth of these rolls is negligible, making them particularly suitable for deep groove rolls and universal rings. Graphitic steel rolls are mainly manufactured by static casting. However, graphitic steel rings can be produced by both static and centrifugal casting methods.

PRODUCT HIGHLIGHTS

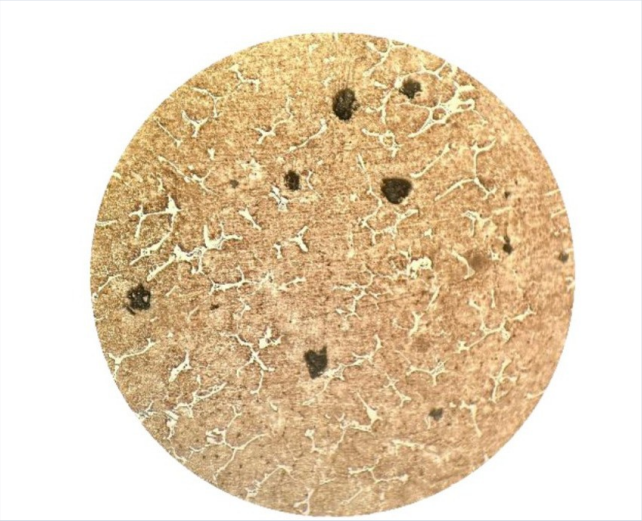
- Spall resistant
- High strength
- Good resistance to fire cracks
- Excellent bite properties
- Low hardness drop through depth



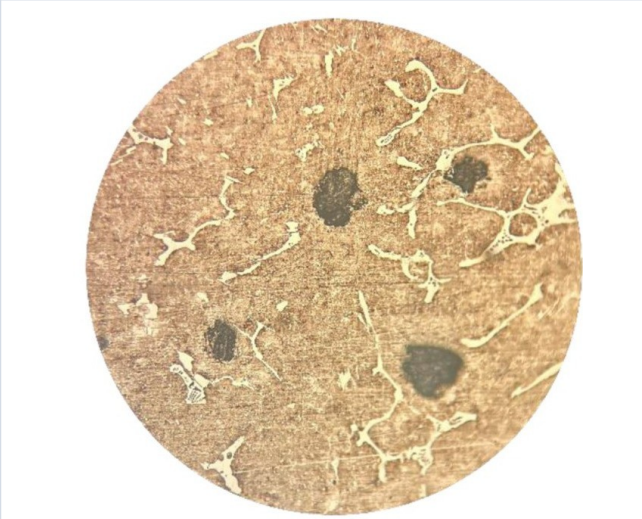
03 CHEMICAL COMPOSITION

wt. %	C	Mn	Si	P	S	Ni	Cr	Mo
Min	1.50	0.50	0.80	0.00	0.00	1.00	1.00	0.10
Max	2.20	1.10	1.50	0.05	0.05	2.00	2.00	0.60

04 MICROSTRUCTURE



■ *100 X – etched*



■ *200 X – etched*

05 HARDNESS GRAPH

