ROLL MATERIAL DATA SHEET

3% Cr and 5% Cr Steel Base

GRADE

3% Cr / 5% Cr

01 FIELD OF APPLICATION

Mill Type	Position
Hot Strip Mills	Back Up Rolls (BUR)
CSP and ESP	Back Up Rolls (BUR)
Plate Mills and Steckel Mills	Back Up Rolls (BUR)
Cold Strip Mills	Back Up Rolls (BUR)

02 MECHANICAL PROPERTIES

Property	3% Cr	5% Cr
Hardness Range	60-65 ShC	65-70 ShC
Tensile Strength	1200-1500 MPa	1300-1600 MPa
Bending Strength	2000-2800 MPa	2200-3000 MPa
Elongation	6-12%	6-12%
Young's Modulus	approx. 210,000 MPa	approx. 210,000 MPa

These rolls are alloy steels with a carbon content less than 1 wt. %, primarily classified according to their Cr content. The heat treatment process typically involves selective hardening, through which the working layer develops enhanced hardness and wear resistance, while the necks maintain sufficient toughness.

The microstructure of the working layer generally consists of a bainitic or a tempered martensitic matrix with a high and uniform distribution of secondary carbide. Owing to the combination of properties, these rolls are particularly well-suited for use as back up rolls in cold and hot strip mills.

Backup rolls are manufactured through static casting, centrifugal casting or forging techniques depending on the required size and performance specifications.

PRODUCT HIGHLIGHTS

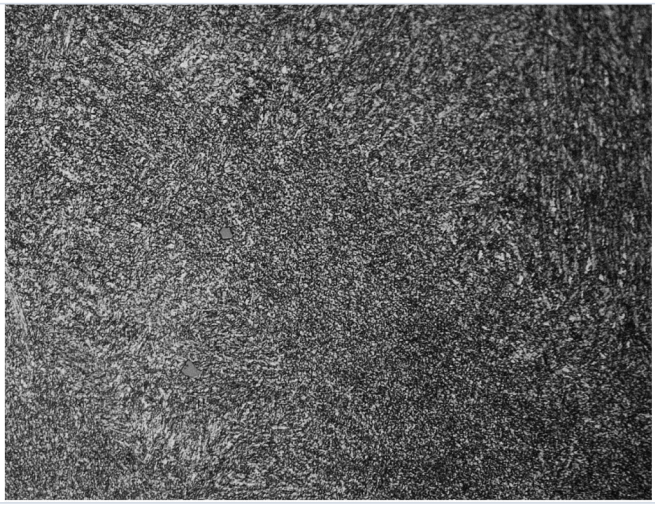
- Spall resistant
- Excellent Strength
- High resistance toward breakage



03 CHEMICAL COMPOSITION

wt. %	C	Mn	Si	P	S	Ni	Cr	Mo	V
Min	0.3	0.3	0.2	0	0	0.2	2.5	0.3	0
Max	0.8	0.8	0.6	0.05	0.05	0.8	5.5	1.5	0.8

04 MICROSTRUCTURE



■ *400 X – etched*