

## High Speed Steel (HSS)

### *Field of Application*

Mill Type	Position
Bar and Wire Rod Mills	Finishing Stands
Light Sections Mills	Finishing Stands
Narrow Strip Mills	Finishing Stands

### *Properties*

<b>Hardness Range</b>	75-85 ShC
<b>Tensile Strength</b>	> 700 MPa
<b>Bending Strength</b>	> 1200 MPa
<b>Young's Modulus</b>	≈ 225.000 MPa

The microstructure of HSS materials usually consists of a high proportion of MC, M<sub>2</sub>C and M<sub>6</sub>C carbides. The main alloying elements are V, Cr, Mo and W. After a comprehensive heat treatment, the carbides of the vanadium (VC), molybdenum (MO<sub>2</sub>C), tungsten (W<sub>2</sub>C) and composite carbides (M<sub>6</sub>C) are finely dispersed in the martensitic matrix.

The hardness of the special carbides is significantly higher than the hardness of M<sub>7</sub>C<sub>3</sub>, or M<sub>3</sub>C carbides, which results in better wear resistance compared to chromium cast iron rolls.

This type of rolls, having exceptional wear resistance, smooth surface and high resistance of fire crack, work longer campaigns, so reduce the need for roll changes in the mills and increase mill productivity.

### **Product Highlights**

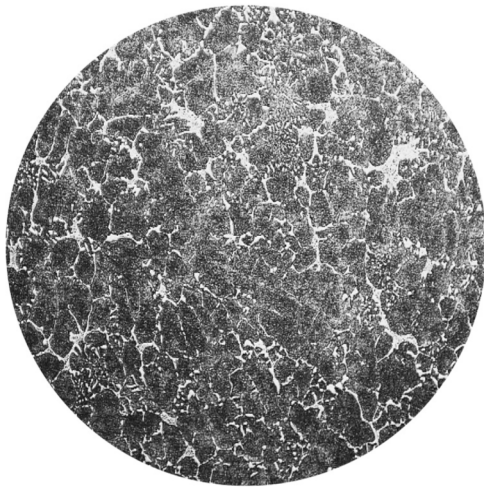
- Excellent wear resistance
- Excellent smooth surface
- Good fire cracking resistance and oxidation
- Constant material properties during service



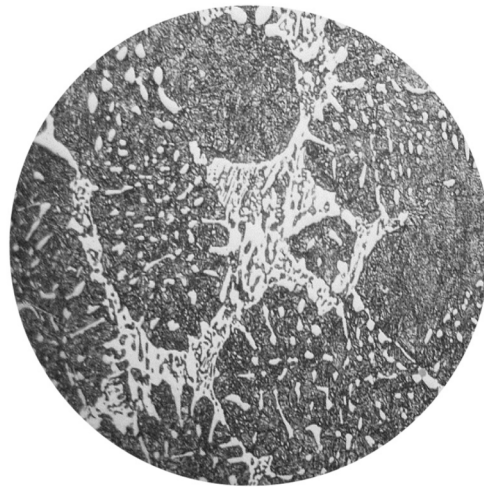
## **Chemical Composition:**

	C	Mn	Si	P	S	Ni	Cr	Mo	V	W
<b>Min</b>	1.60	0.50	0.40	0.00	0.00	0.50	4.00	3.00	4.00	0.00
<b>Max</b>	2.40	1.50	1.20	0.05	0.05	1.50	6.50	5.00	6.50	3.00

## **Microstructure:**

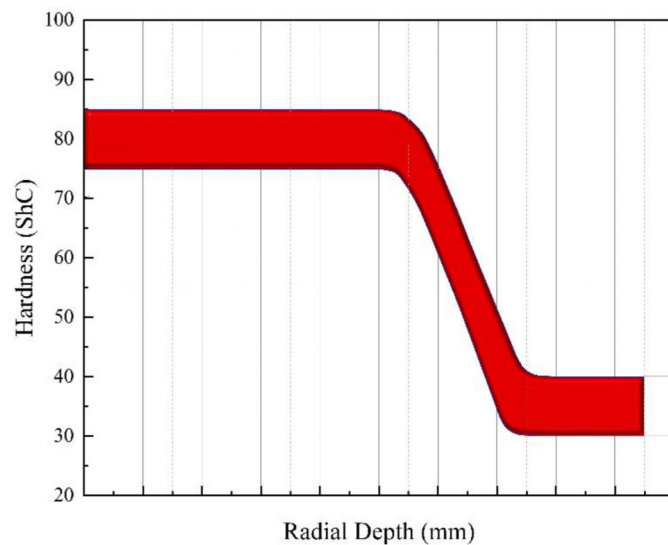


100 X – etched



400 X – etched

## **Hardness Graph (Shell – Interface – Core):**



Contact Us:

Contact Us:

Roll Nova – Izmir / Turkey

Homepage: [www.rollnova.com](http://www.rollnova.com)

Email: [sales@rollnova.com](mailto:sales@rollnova.com)