

## High Speed Steel Rolls

### Hitachi Roll Material

Adamite Steel  
Cr Iron  
Cr Steel  
Definite Chilled Iron  
**High Speed Steel**  
Indefinite Chilled Iron  
Nodular Iron  
Special Cast Steel



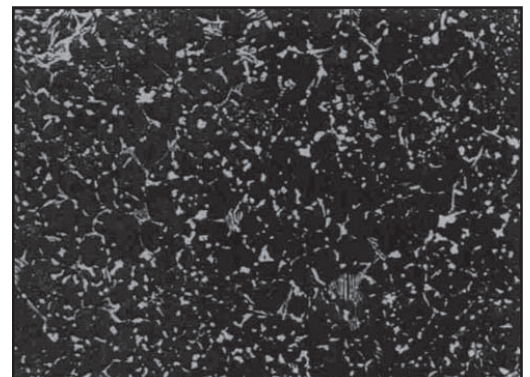
**H**igh Speed Steel (HSS) rolls are composed of high alloy and high carbon HSS outer shell with either a forged steel or nodular iron core. This type of molten metal for HSS is poured along the core material continuously or spun cast. HSS provides excellent hardness, wear resistance, and high temperature properties. The advantages of these high-speed rolls are:

1. The high-carbon, high-alloy outer shell has high hardness at high temperatures, providing excellent wear resistance.
2. The outer shell has a fine microstructure without gravity segregation due to its special casting method.
3. The boundary between the outer shell and core is combined by metallic diffusion.

Applications for these rolls include hot strip mill finishing train, rod and bar mill finishing, and universal mill finishing. Because of the excellent properties of these rolls, new applications are continuously being investigated and tried.

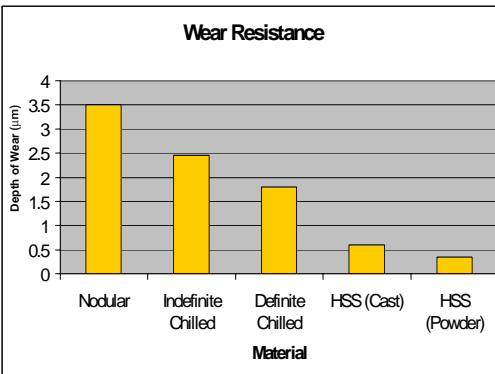
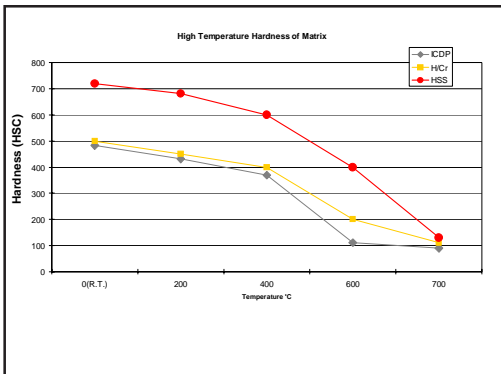


*Casting HSS Rolls*



*HSS Metal Structure*

High Speed Steel Roll	WZ20 (Spin Cast)	RZ30 (Clad Cast)	HP10 (Powder)
Hardness (HSC)	75-85		
Composition (% wt)			
Carbon (C)	1.5 - 3.5		
Silica (Si)	0.3 - 3.0		
Maganese (Mn)	0.3 - 1.5		
Nickel (Ni)	<5		
Chromium (Cr)	2.0 - 7.0		
Molybdenum (Mo)	<9		
Tungsten (W)	<20		
Vanadium (V)	3.0 - 15.0		
Cobalt (Co)	<10		



Since 1915, Hitachi Metals, Ltd. has been a leading roll manufacturer. Through constant study and research, Hitachi has kept abreast of the demands and advances of the industry. Today, Hitachi is a full-line roll manufacturer, second to none in the world. With its innovative roll manufacturing techniques, Hitachi supplies all types of mill rolls to industries in all parts of the world, meeting the special demands of each industry.

This information does not constitute a warranty or guarantee.

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