

High Speed Steel Duplex Rolls

High speed steel (HSS) duplex rolls are manufactured with vertical centrifugal casting process, the shell is HSS with high hardness and excellent wear resistance at high temperature, the core is nodular cast iron with toughness, the comprehensive property is a combination of high wear resistance and toughness. These rolls are manufactured with high content alloy elements and special heat treatment process, the microstructure of shell is martensite and bainite with plenty of carbides such as MC, M₂C and M₆C distributed among the matrix, there is only a little hardness drop in the shell. High alloy elements and re-hardening give the rolls an excellent wear resistance at high temperature. The outer layer hardness doesn't show a significant drop until the temperature exceeds 550°C, and the wear resistance is 3-5 times higher than traditional high Ni Cr indefinite chilled iron rolls and high Cr iron rolls.

化学成分 Chemical composition(%)

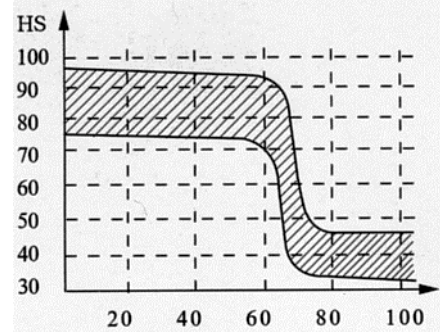
代号 Symbol	C	Si	Mn	Cr	Ni	Mo	V	W
HSS-1	0.6-1.0	0.4-1.5	0.4-1.0	4.0-8.0	0.3-1.5	2.0-8.0	0.4-2.0	1.0-3.0
HSS-2	1.5-2.5	0.3-1.0	0.3-1.5	4.0-8.0	0.3-1.5	2.0-8.0	3.0-10.0	2.0-10.0

物理性能 Physical Properties

代号 Symbol	硬度 Hardness HS	抗拉强度 Tensile Strength MPa	弹性模量 E Elastic Modulus × 10 ³ MPa
HSS-1	70-90	> 750	210-220
HSS-2	75-95	> 750	210-220
辊颈 Neck	35-50	> 350	140-180

硬度分布曲线示例:

Example of typical hardness profile:



距表面距离 (mm)

Depth from surface

金相组织 Microstructure:

马氏体 + 贝氏体 + 碳化物

martensite + bainite + carbide

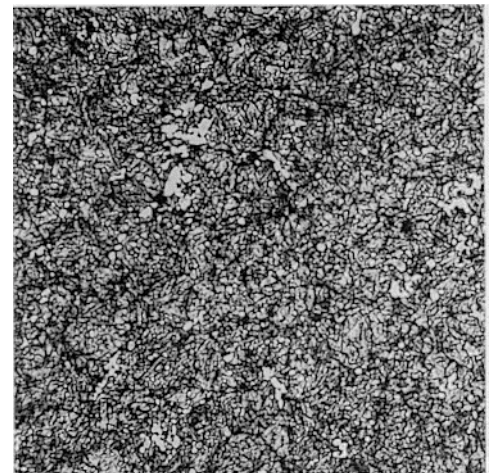
用途 Application:

带钢热连轧机精轧机架工作辊、带钢冷轧机工作辊、棒线材、万能H型钢轧机辊环、辊套。

Work rolls for finishing stands for hot strip mills, work rolls for cold strip mills, rings or sleeves for bar, rod mills and universal H-section mills.

承制范围 The capacity of making:

轧辊类别 Type of rolls	辊身直径(mm) Diameter of barrel	辊身长度(mm) Length of barrel	单重(t) Weight
轧辊 Rolls	Φ 400-850	1000-2500	15(max.)
辊环 Sleeves	Φ 200-1400	700(max.)	7(max.)



基体 Matrix 500X