

High Ni-Cr Alloy Indefinite Chilled Cast Iron Rolls

High Ni-Cr duplex indefinite chilled iron rolls exhibit excellent properties which are produced by centrifugal or overflow casting process. The high micro-hardness of matrix and carbide can be obtained through adjusting the content of Ni, Cr, Mo and other alloy elements. A fine and uniform shell layer with a low hardness fall can be obtained with special heat treatment technique. As with a little of graphite, these rolls are much more resistant to wearing, fire cracking, spalling and pinching.

The shell depth may be varied to the particular application, and the core adopts either grey iron with ductile or nodular iron with high strength, which can give core and neck a satisfactory toughness.

The sufficient cooling water is essential on the working rolls.

化学成分 Chemical composition(%)

代号 symbol	C	Si	Mn	Cr	Ni	Mo
HNiCr-1	2.8-3.5	0.6-1.1	0.4-1.1	1.6-2.0	4.0-4.5	0.2-0.8
HNiCr-2	3.0-3.5	0.7-1.2	0.5-1.2	1.4-1.8	3.8-4.5	0.2-0.8

物理性能 Physical Properties:

代号 Symbol	硬度 Hardness HS	抗拉强度 Tensile strength MPa	抗弯强度 Bending strength H S	冲击韧性 Impact Value $\times 10^4 \text{J/m}^2$	弹性模量 Elastic Modulus kMPa
HNiCr-1	70-85	350-450	450-650	3-7	150-190
HNiCr-2	60-75	350-450	450-650	2-6	150-190
灰芯 Grey	35-50	>190	350	3-7	110-150
球芯 Nodular	35-50	>350	550	4-7	160-190

金相组织 Microstructure:

HNiCr-1 贝氏体 + 少量马氏体 + 石墨 + 碳化物
bainite + a little of martensite + graphite + carbide

HNiCr-2 回火索氏体 + 贝氏体 + 石墨 + 碳化物
temper sorbite + bainite + graphite + carbide

用途 Application:

热带连轧精轧后段工作辊

宽、中厚板轧机粗轧、精轧机架工作辊

热带(板)四辊平整机工作辊、支承辊、横切平整辊

炉卷轧机工作辊

高速线材轧机预精轧辊环

有色金属板材轧机工作辊

Work rolls for finishing final stands of hot strip mills.

Work rolls for roughing stands and finishing stands of wide plate mills.

Work rolls, back-up rolls for hot strip (plate) temper mills.

Work rolls for Steckel mills.

Sleeves for pre-finishing stands of high-speed wire-rod mills.

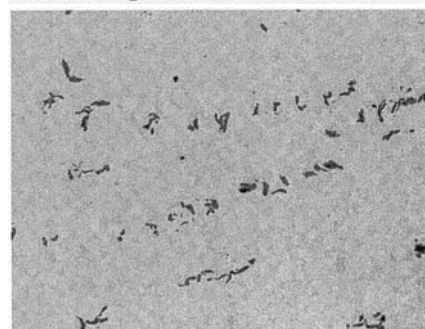
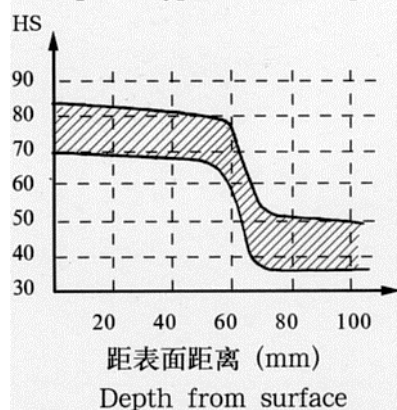
Work rolls for non-ferrous plate mills.

承制范围 The capacity of making:

制造方法 Methods of making	辊身直径(mm) Diameter of barrel	辊身长度(mm) Length of barrel	净重(t) Net weight
离心法	Φ 280-1350	400-4300	45
全冲洗法	Φ 800-1300	< 5500	

硬度分布曲线示例:

Example of typical hardness profile:



工作层石墨 graphite in shell 50X



HNiCr-1 工作层基体 500X
Microstructure of shell



HNiCr-2 工作层基体 500X
Microstructure of shell