

High Chrome Steel (HiCr-Steel)

Field of Application

| Mill Type | Position |
|----------------|-----------------|
| Hot Strip Mill | Roughing Stands |
| Plate Mill | Roughing Stands |
| Steckel Mill | Roughing Stands |

Mechanical properties

| | |
|------------------|---------------------|
| Hardness Range | 70-80 ShC |
| Tensile Strength | > 700 MPa |
| Bending Strength | > 1200 MPa |
| Young's Modulus | approx. 210.000 MPa |

These rolls are typically manufactured using the centrifugal cast double-poured method, with a nodular iron core. The microstructure of these wear resistant chrome alloys contains a network of eutectic M_7C_3 -type chrome carbides within a martensitic or pearlitic matrix, as well as finely dispersed secondary carbides.

Due to the special structure of the chromium carbides, these chrome alloys exhibit superior mechanical strength and toughness compared to other carbide-containing materials. Additional advantages include excellent thermal resistance.

The amount of chromium carbides in the microstructure can vary significantly. Increasing the amount of chromium carbides enhances wear resistance, though results in decreasing toughness and mechanical strength. The hardness decrease from the surface remains negligible.

Product Highlights

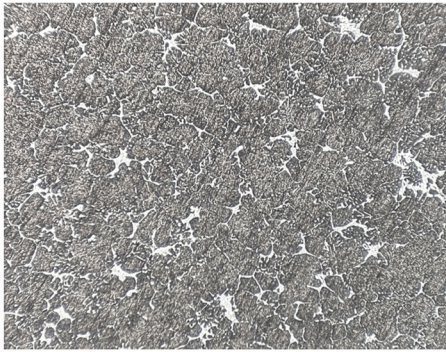
- Excellent wear resistance and oxidation resistance
- Constant material properties during service life
- Good thermal crack resistance



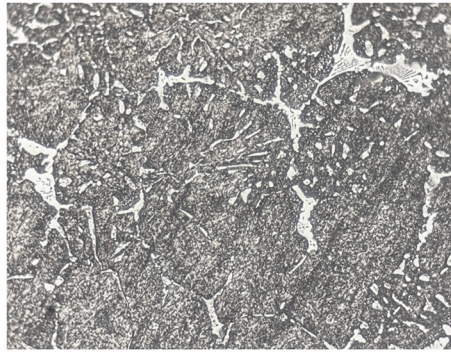
Chemical Composition:

| | C | Mn | Si | P | S | Ni | Cr | Mo | V | W |
|------------|------|------|------|------|-------|------|-------|------|------|------|
| Min | 1.20 | 0.40 | 0.40 | 0 | 0 | 1.00 | 11.00 | 0.50 | 0 | 0 |
| Max | 2.50 | 1.40 | 1.20 | 0.10 | 0.050 | 3.00 | 20.00 | 2.50 | 1.00 | 1.00 |

Microstructure:

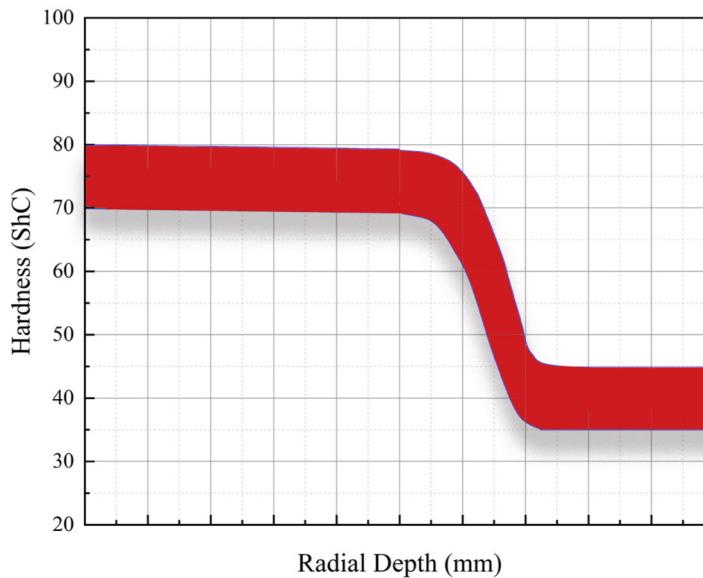


100 X – etched (Nital)



400 X – etched (Nital)

Hardness Penetration Curve (Shell – Interface – Core):



Contact Us:

Roll Nova – Izmir / Turkey

Homepage: www.rollnova.com

Email: sales@rollnova.com