

Niobium Carbide Guide Rolls for Long Products Mills

NbC GUIDE ROLLS are components produced by powder metallurgy (P/M). They are compacted and then sintered under vacuum to provide high mechanical properties and superior wear resistance. Additionally, they can be submitted to a post-treatment of sintering under pressure, SinterHip, to optimize performance and properties through microstructural conditioning.



E3 METAIS, a company specialized in solutions for high performance, through "design of materials with high wear resistance", has focused its efforts on the development of new technologies in hard metal. Currently developing the state of the art of the system NbC-Ni (Niobium Carbide - Nickel), alternative to the traditional specifications of WC-Co (Tungsten Carbide - Cobalt) and FeTiC (Iron - Titanium Carbide).

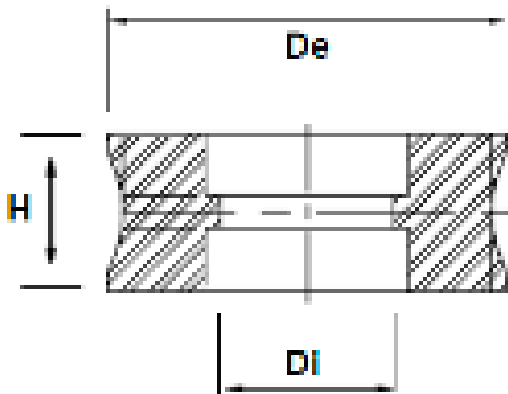
Niobium carbide (NbC) is a refractory compound that combines high wear resistance with good toughness, surpassing those of tool steel and TiC iron, enabling its use as a guide roll in high speed rolling mills, with operational advantages, minimizing accident risks, since its density (weight) is half that of conventional carbide.

The performance of NbC guide rolls outperforms FeTiC and Tool Steel rolls at least 5 times. The niobium carbide rolls have high hot hardness, good resistance to thermal shock, which guarantees excellent performance at the working temperature (above 800°C).

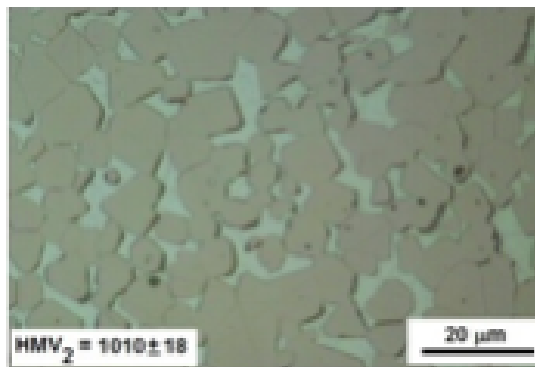
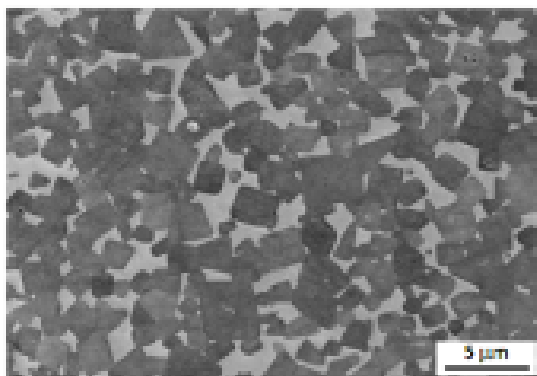
Specifications, Dimensions e Properties:

DREC_1-NbC – NbC: 75 a 79 (w%) e Ni: 25 a 21 (w%)

DREC_2-NbC – NbC: 80 a 85 (w%) e Ni: 20 a 15 (w%)



De (mm)		Di		H(mm)	
Min.	Máx.	Min.	Máx.	Min.	Máx.
40	75	20	30	20	60



Hardness:

83 - 90 HRA
800 - 1300 HV₃₀

TRS:

>1500 MPa

Density:

7,8g/cm³

Fracture Toughness (K_{IC}):

>15MPa.m^{1/2}