

Chemical composition**Carbide phase****TiC**

30

(guideline values in % by weight)

Hauptbestandteile der Bindephase**Ni**

15.0

Co

9.0

Mo

6.0

Fe

Balance

Microstructure

Titanium carbide + nickel martensite

Characteristic properties

The matrix structure consists of a highly tough, age-hardenable nickel martensite.

Finishing is performed in the solution-annealed, as-delivered condition. Subsequent age-hardening takes place at a relatively low temperature of 480 °C and can be conducted, for example, in a convection air furnace or an electrically heated chamber furnace. The workpiece remains extremely true-to-size and little prone to distortion due to the low age-hardening temperature.

Mechanical properties
age-hardened**Density****g/cm³**

6.7

Compression strength**MPa**

2400

Bending fracture**MPa**

1450

Modulus of elasticity**MPa**

280000

Shear modulus**MPa**

117000

Service hardness**HRC**

approx. 63

Further data on the mechanical properties upon request**Physical properties****Thermal expansion coefficient between 20 and ... °C in 10⁻⁶ · °C⁻¹**

100

200

300

400

500

600

700

800

900

1000

8.0

8.7

8.9

9.1

9.4

9.8

9.4

8.5

9.2

9.7

Thermal conductivity at W · cm⁻¹ · °C⁻¹

20 – 80 °C

0.181 – 0.189

Electrical resistivity at 20 °C in Ω · mm² · m⁻¹

0.806

Magnetic properties

magnetically clampable

Magnetic saturation polarisation**mT**

1580

Coercive field strength**kA · m⁻¹**

1.8

Remanence**mT**

230

Use

For all types of forming tools, etc. exposed to particularly heavy wear and bending at temperatures up to 500 °C. For wearing parts of machinery and apparatus. Used especially in plastics processing as pelletizer knives, extruder worms, injection moulding nozzles, etc.

Ferro-Titanit®

Nikro 143

Solution annealing

Annealing temperature °C
850 (2 – 4 h vacuum)

Cooling
1 – 4.5 bar N₂

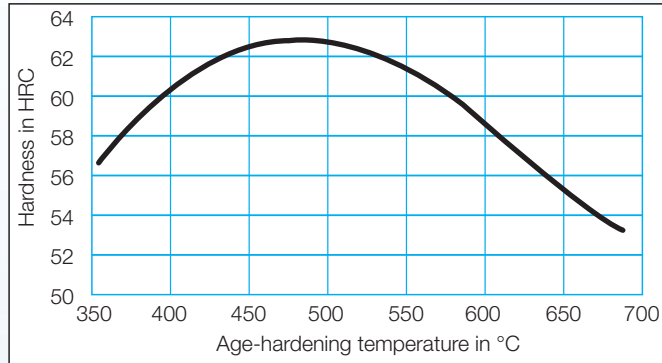
Hardness after annealing HRC
approx. 53

Age-hardening

Age-hardening temperature °C
480 (6 – 8 h)

Hardness after age-hardening HRC
approx. 63

Age-hardening curve



Note:

Carburising atmospheres are to be avoided during heat treatment. Linear shrinkage during age-hardening is generally 0.02 mm/m.