Ferro-Titanit®

Nikro 128

Chemical composition

Carbide phase	Binder phase (main components)				
TiC	**Cr**	**Co**	**Ni**	**Mo**	**Fe**
30	13.5	9	4	5	Balance

(guideline values in % by weight)

Microstructure

Titanium carbide + nickel martensite

Characteristic properties

The matrix structure consists of a highly tough, age-hardenable nickel martensite. The chromium content of 13.5 % provides good corrosion resistance. Finish-machining 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	Compression strength	Bending racture	Modulus of elasticity	Shear modulus	Service hardness	Further data on the mechanical properties upon request
g/cm³	**MPa**	**MPa**	**MPa**	**MPa**	**HRC**	
6.6	2750	1200	294000	117000	approx. 62	

Physical properties

Thermal expansion coefficient between 20 and … °C in $10^{-6} \cdot °C^{-1}$

100	200	300	400	500	600	700	800
8.3	8.9	9.3	9.6	9.9	10.2	9.2	9.5

Thermal conductivity at … °C in $W \cdot cm^{-1} \cdot °C^{-1}$

100	150	200	250	300	350	400	450	500	550	600
0.171	0.178	0.188	0.199	0.212	0.226	0.242	0.259	0.276	0.295	0.315

Measuring frequency (Hz)	Damping Q^{-1} (10^{-5})
2600	10.0
7100	15.2
14000	11.9
22000	10.9

Electrical resistivity at … °C in $\Omega \cdot mm^2 \cdot m^{-1}$

20	100	200	300	400	500	600
1.10	1.12	1.17	1.21	1.25	1.31	1.67

Magnetic properties
magnetically clampable

Magnetic saturation polarisation	Coercive field strength	Remanence
mT	**kA · m⁻¹**	**mT**
740	3.7	190

Use

Good possibilities of use in the processing of abrasive plastics – as pelletizer knives, injection moulding nozzles, dies, worms and bushes. Also as wear-resistant rings in centrifugal pumps, charging heads and circular cutters in preservecan filling machines.

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Solution annealing

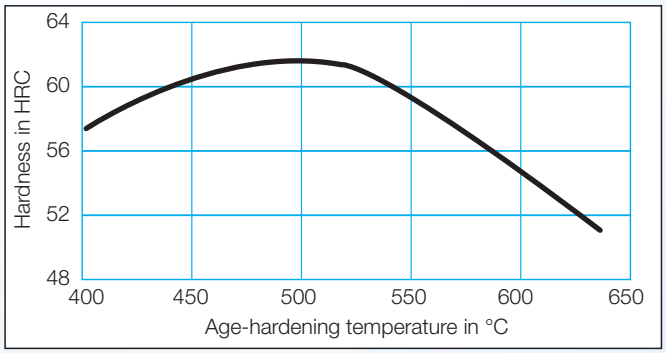
Annealing temperature °C	Cooling	Hardness after annealing HRC
850 (2 – 4 h vacuum)	1 – 4.5 bar N_2	approx. 53

The material is supplied in solution-annealed condition by the producer. Due to this fact, only ageing at 480 °C is still required after finish-machining.

Age-hardening

Age-hardening temperature °C	Hardness after age-hardening HRC
480 (6 – 8 h)	approx. 62

Age-hardening curve



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