



## SINOXX 4125 Steel

### Designation by Standards

Brand Name	Ravne	Mat. No.	DIN	EN	AISI/SAE
SINOXX 4125	PK348	1.4125	-	X105CrMo17	440C

### Chemical Composition (in weight %)

C	Si	Mn	Cr	Mo	Ni	V	W	Others
1.08	max. 1.0	max. 1.0	17.00	0.60	-	-	-	-

### Description

This is a high carbon martensitic stainless with moderate corrosion resistance good strength and the ability to obtain and keep excellent hardness HRC 60 and wear resistance.

### Applications

Ball bearings and races, gage blocks, molds and dies, cutlery, valve components, knives and measuring instruments and other products with highest hardness and wear resistance.

### Physical properties (average values) at ambient temperature

Modulus of elasticity [ $10^3 \times \text{N/mm}^2$ ]: 200

Density [ $\text{g/cm}^3$ ]: 7.67

Thermal conductivity [ $\text{W/m.K}$ ]: 24.2

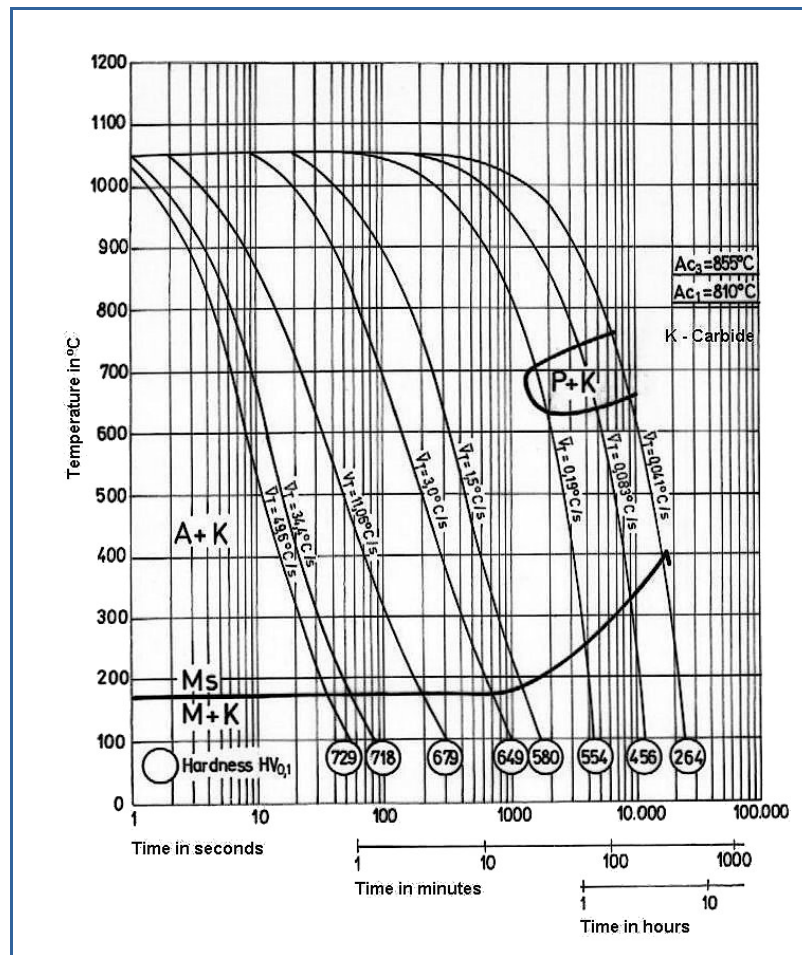
Electric resistivity [ $\text{Ohm mm}^2/\text{m}$ ]: 0.60

Specific heat capacity [ $\text{J/g.K}$ ]: 0.46

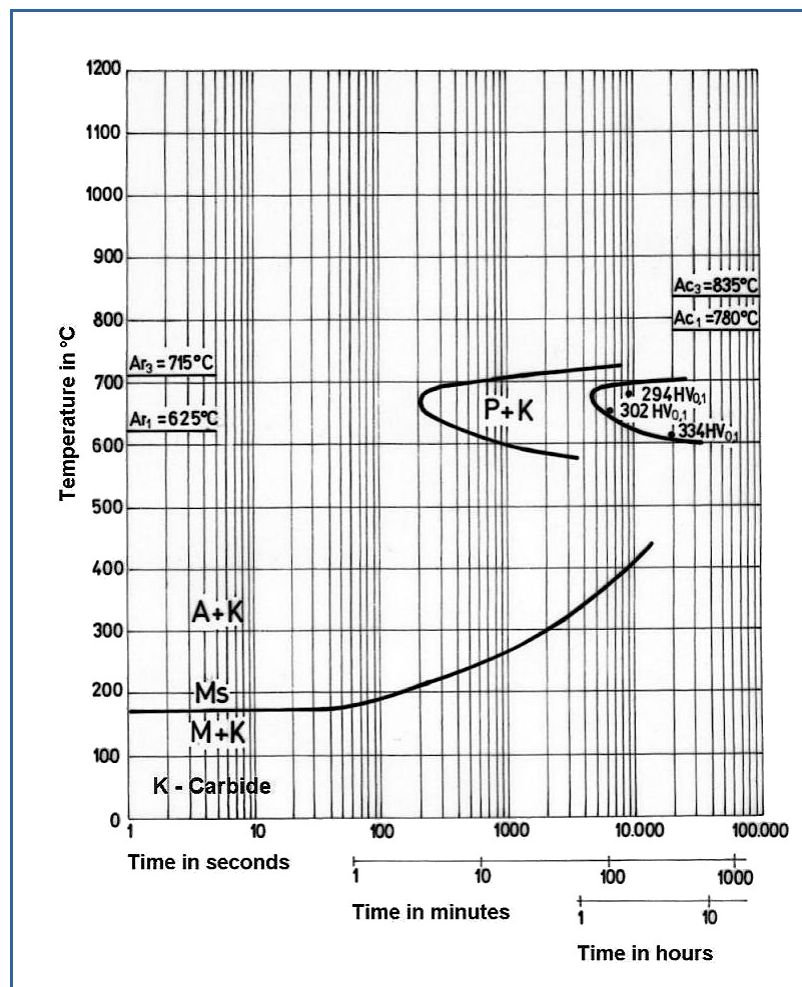
### Coefficient of Linear Thermal Expansion $10^{-6} \text{ }^\circ\text{C}^{-1}$

20-100°C	20-200°C	20-300°C	20-400°C	20-500°C	20-600°C	20-700°C
9.8	10.8	11.4	11.7	12.0	12.2	12.4

## Continuous Cooling Transformation (CCT) Diagram



## Time-Temperature Transformation (TTT) Diagram



### Soft Annealing

Heat to 820-860°C, cool slowly in furnace. This will produce a maximum Brinell hardness of 269.

### Hardening

Harden from a temperature of 1000-1050°C followed by oil or quenching. Hardness after quenching is min. 58 HRC.

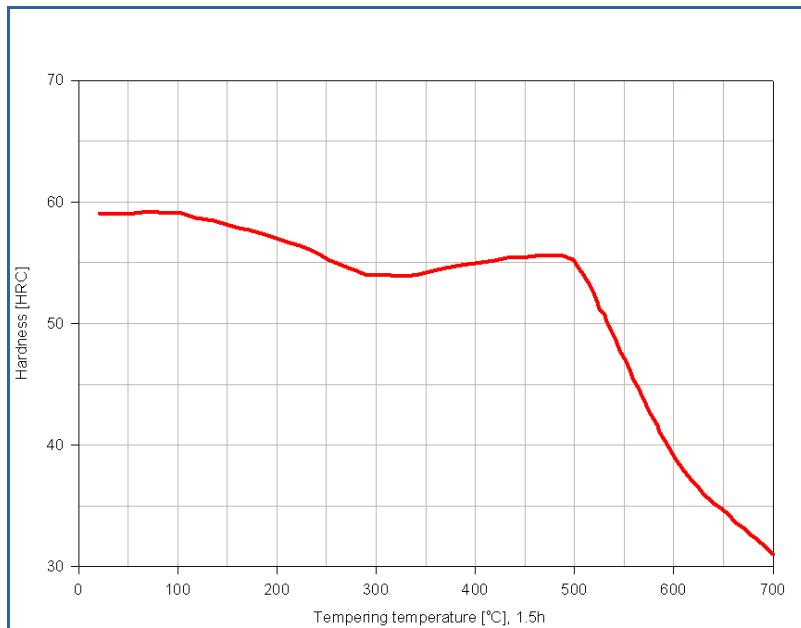
### Tempering

Tempering temperature: See the data bellow.

#### Tempering Temperature (°C) vs. Hardness (HRC)

100°C	200°C	300°C	400°C	500°C	600°C	600°C
59	57	54	55	55	39	31

#### Tempering Diagram



### Forging

Pre-heat to 760°C, then bring slowly up to 1038-1204°C before proceeding. Do not work this material below 927°C. Cool material slowly after working and once at room temperature, anneal fully.

### Machinability

Best machined in the annealed condition. Tough, stringy chips can be best handled by the use of chip breakers. Carbide or ceramic tooling is recommended.

### Cold Working

This alloy is considered only slightly cold workable by common practices.

### Corrosion Resistance

Resistant to a wide variety of media including fresh water, steam, petroleum products and alcohol. The material is not recommended to be used in annealed condition as it may get rusty. Correct passivation process recommendation to improve the corrosion resistance in quenched and tempered form. HT recommendation to obtain best corrosion resistance. In this case as per the recommendation that is obtained thru low temperature tempering with mirror finished surface. The 440 steel is not recommended to be used in elevated temperature application i.e above 400°C. Corrosion resistance is reduced when used in elevated temperature condition.

### Welding

This alloy is not commonly welded due to its tendency to air harden. If it must be welded, preheat to 260°C and post weld treat at 732-760°C for 6 hours followed by a slow furnace cooling to avoid cracking. Use similar filler metal.

Forms manufactured: Please see the [Dimensional Sales Program](#).

### Disclaimer

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