SINOXX 4116 Steel

Designation by Standards

Brand Name	Ravne	Mat. No.	DIN	EN	AISI/SAE
SINOXX 4116	PK5	1.4116	-	X50CrMoV15	440A*

Chemical Composition (in weight %)

C	Si	Mn	Cr	Mo	Ni	V	W	Others
0.50	max. 1.00	max. 1.00	14.50	0.65	-	0.15	-	-

Description
This is a high carbon martensitic stainless steel with moderate corrosion resistance good strength and the ability to obtain and keep excellent hardness (Rc 56) and wear resistance.

Applications
Ball bearings and races, gage blocks, molds and dies, cutlery, valve components, knives and measuring instruments. All kinds of cutting tools - surgical instruments, pressing dies for synthetic resin.

Physical properties (average values) at ambient temperature
Modulus of elasticity [10^3 x N/mm^2]: 220
Density [g/cm^3]: 7.7
Thermal conductivity [W/m.K]: 30.0
Electric resistivity [Ohm mm^2/m]: 0.65
Specific heat capacity[J/g.K]: 0.46
Magnetisable: Yes

Coefficient of Linear Thermal Expansion 10^{-6} $^oC^{-1}$

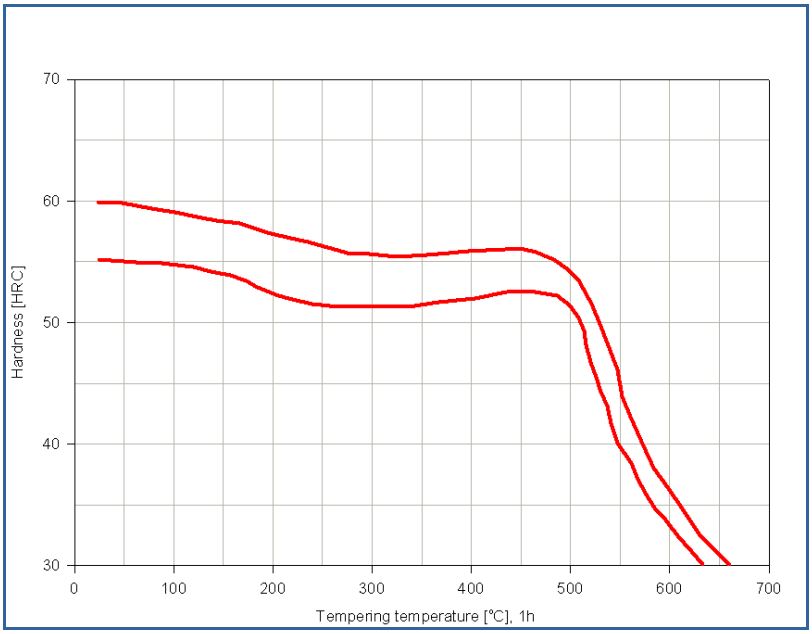
20-100^{o}C	20-200^{o}C	20-300^{o}C	20-400^{o}C	20-500^{o}C
10.5	11.0	11.0	11.5	12.0

Soft Annealing
Heat to 730-780^{o}C, cool slowly.

Hardening
Harden from a temperature of 980-1030^{o}C followed by oil or air quenching.

Tempering
Tempering temperature: Please see the diagram bellow.

Tempering Diagram



Forging

Hot forming temperature: 1100-800^{o}C.

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.

Corrosion Resistance

Resistant to a wide variety of media including fresh water, steam, petroleum products and alcohol.

Welding

This steel is not commonly welded due to its tendency to air harden. If it must be welded, preheat to 260^{o}C and post weld treat at 732-760^{o}C for 6 hours followed by a slow furnace cooling to avoid cracking.

Cold working

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

Forms manufactured: Please see the Dimensional Sales Program.

Disclaimer

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