



SIHARD 2436 Steel

Designation by Standards

Brand Name	Ravne	Mat. No.	DIN	EN	AISI/SAE
SIHARD 2436	OCR12SP	1.2436	-	X210CrW12	-

Chemical Composition (in weight %)

C	Si	Mn	Cr	Mo	Ni	V	W	Others
2.12	0.25	0.45	12.00	-	-	-	0.70	-

Description

Ledeburitic chromium steel with high durability and cutting performance; low distortion on hardening.

Applications

Cutting tools for sheet metal thicknesses up to approximately 2 mm, paper blades, stone compression moulds, section rolling-mill rolls, deep-drawing tools.

Physical properties (average values) at ambient temperature

Modulus of elasticity [$10^3 \times \text{N/mm}^2$]: 210

Density [g/cm^3]: 7.77

Thermal conductivity [W/m.K]: 20.0, 20.5 (at 350°C), 24.1 (at 700°C)

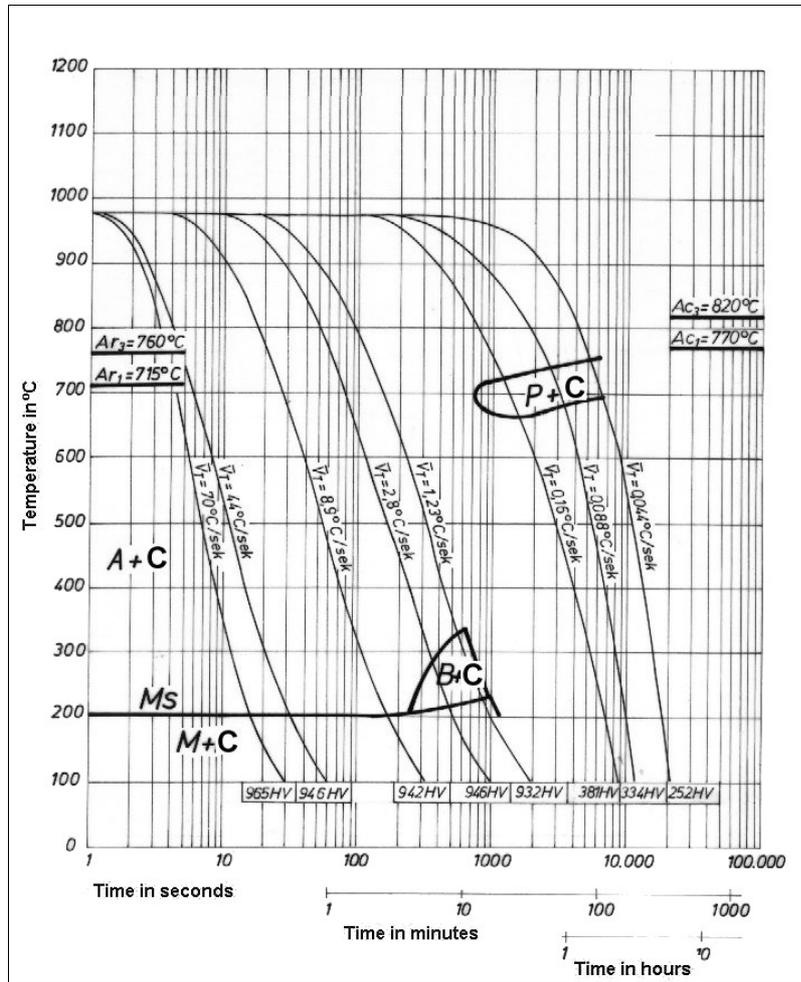
Electric resistivity [$\text{Ohm mm}^2/\text{m}$]: 0.65

Specific heat capacity [J/g.K]: 0.46

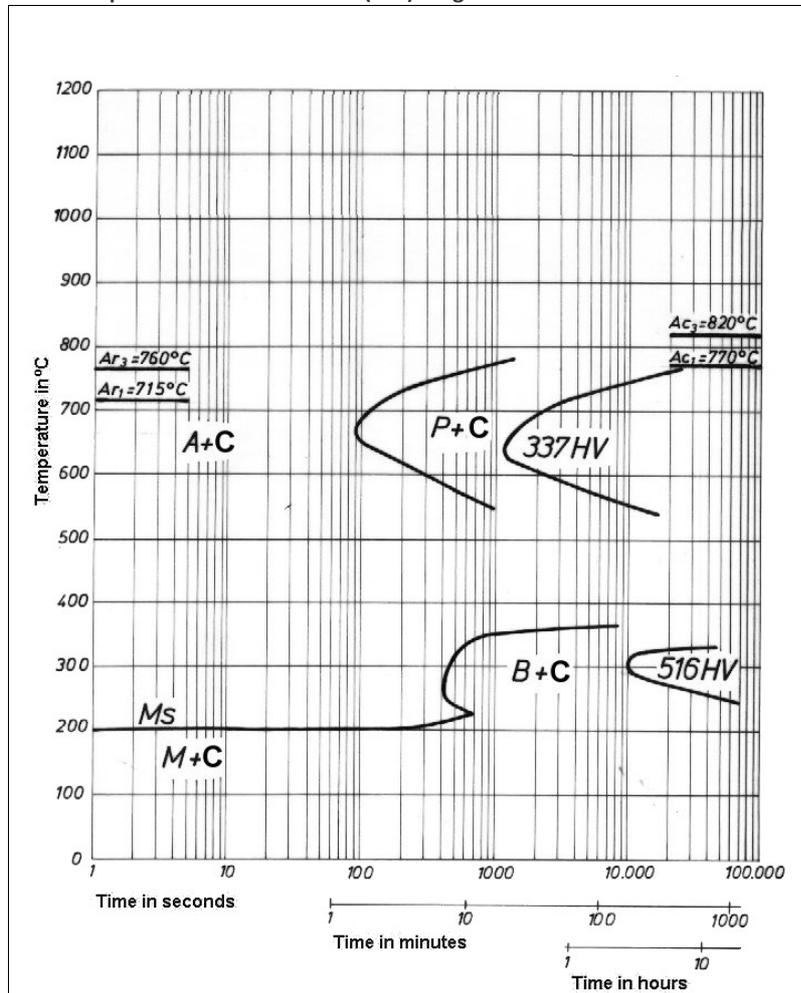
Coefficient of Linear Thermal Expansion $10^{-6} \text{ }^\circ\text{C}^{-1}$

20-100°C	20-200°C	20-300°C	20-400°C	20-500°C	20-600°C	20-700°C
10.8	11.8	12.4	12.5	12.8	12.9	13.0

Continuous Cooling Transformation (CCT) Diagram



Time-Temperature Transformation (TTT) Diagram



Soft Annealing

Heat to 800-840°C, cool slowly in furnace. This will produce a maximum Brinell hardness of 255.

Stress Relieving

Stress relieving to remove machining stresses should be carried out by heating to 650°C, holding for one hour at heat, followed by air cooling. This operation is performed to reduce distortion during heat treatment.

Hardening

Harden from a temperature of 940-980°C followed by air,oil quenching or warm bath quenching 500-550°C. Hardness after quenching is 64 HRC.

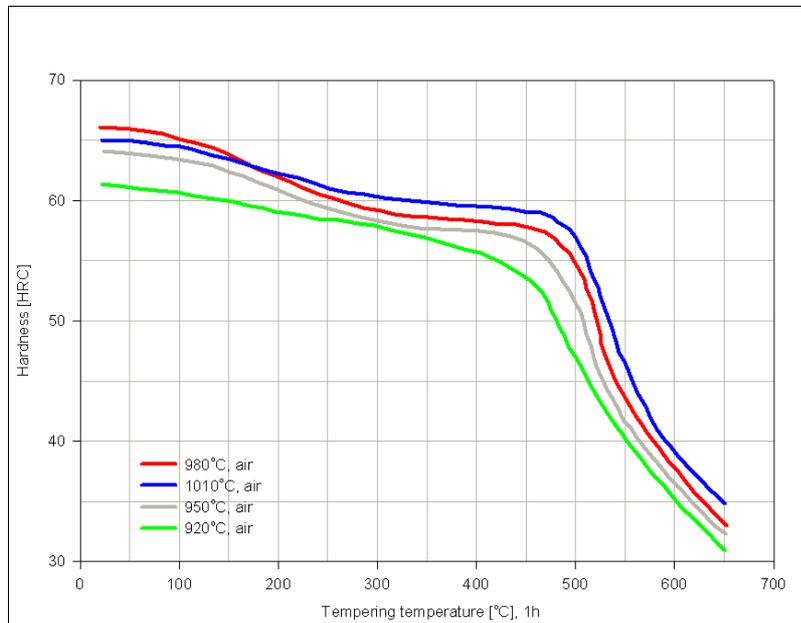
Tempering

Tempering temperature: See the data bellow.

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

100°C	200°C	300°C	400°C	500°C	600°C
63	62	60	58	56	48

Tempering Diagram



Forging

Hot forming temperature: 1050-850°C.

Machinability

The machinability rating of OCR12SP is roughly 20-25% that of free machining carbon steel 1018. Due to its abrasion resistant nature, machining in the hardened condition should be limited to finish grinding.

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

Disclaimer

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