

SIHARD 2361 Steel

Designation by Standards

Brand Name	Ravne	Mat. No.	DIN	EN	AISI/SAE
SIHARD 2361	OCR6	1.2361	X91CrMoV18	-	440B

Chemical Composition (in weight %)

С	Si	Mn	Cr	Мо	Ni	V	W	Others
0.90	max. 1.0	max. 1.0	18.0	1.10	-	0.10	-	-

Description

This is a high carbon martensitic stainless with moderate corrosion resistance good strength and the ability to obtain and keep excellent hardness (HRC 58) and wear resistance.

Applications

Ball bearings and races, gage blocks, moulds and dies, cutlery, valve components, knives and measuring instruments.

Physical properties (average values) at ambient temperature

Modulus of elasticity [10³ x N/mm²]: 190-210 Density [g/cm³]: 7.68 Thermal conductivity [W/m.K]: 15.0

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

20-100 ^o C	20-200 ^o C	20-300 ^o C	20-400 ^o C	20-500 ^o C	20-600 ^o C	20-700 ^o C	20-800 ^o C
9.8	10.5	10.9	11.2	11.3	11.3	11.5	11.8



Time-Temperature Transformation (TTT) Diagram



Soft Annealing

Heat to 810-860°C, cool slowly in furnace. This will produce a maximum Brinell hardness of 265.

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 1000-1050°C followed by oil quenching. Hardness after quenching is 56 HRC.

Tempering

Tempering temperature: up to 150°C.

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

100°C	200°C	300°C	400°C	500°C	550°C	600°C	650°C	700°C
56	54	52	53	54	51	40	33	29

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.

Corrosion Resistance

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

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.

Cold working

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

Forms manufactured: Please see the Dimensional Sales Program.

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