



SIHARD 2357 Steel

Designation by Standards

Brand Name	Ravne	Mat. No.	DIN	EN	AISI/SAE
SIHARD 2357	OH253	1.2357	50CrMoV13-1	-	S7

Chemical Composition (in weight %)

C	Si	Mn	Cr	Mo	Ni	V	W	Others
0.50	0.50	0.70	3.25	1.50	-	0.25	-	-

Description

S7 is a general purpose air hardening tool steel having high impact and shock resistance. It has good resistance to softening at moderately high temperatures. This combination of properties makes it suitable for many hot-work and cold-work applications.

Applications

Chisels, rivet sets, punches, driver bolts. Hot punching and shearing.

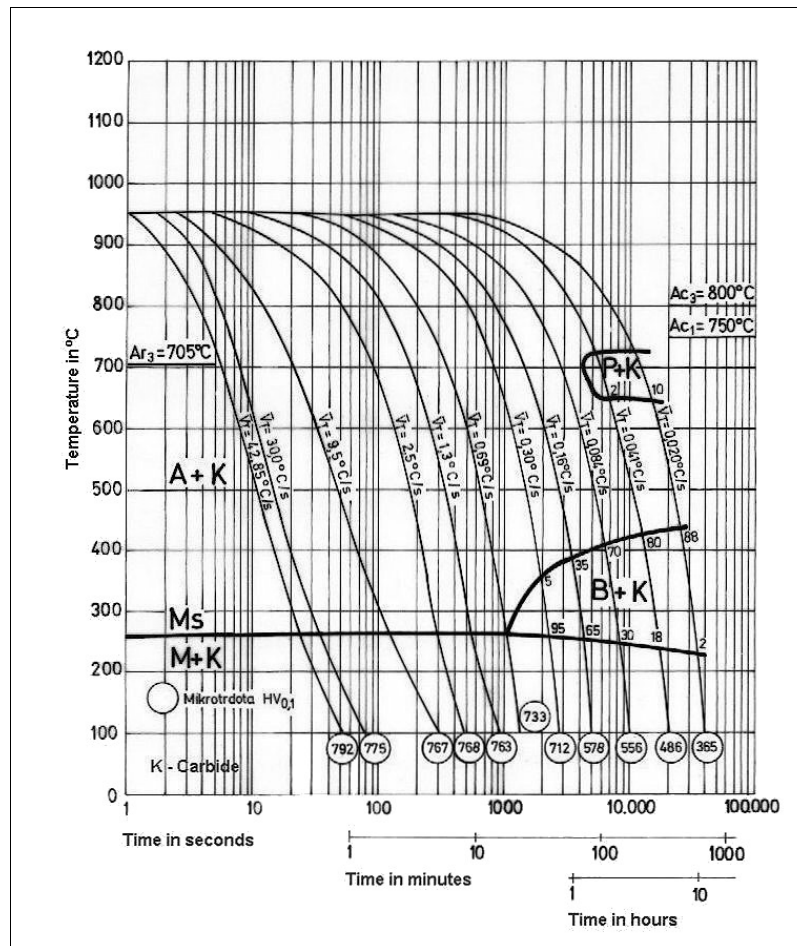
Physical properties (average values) at ambient temperature

Density [g/cm³]: 7.86

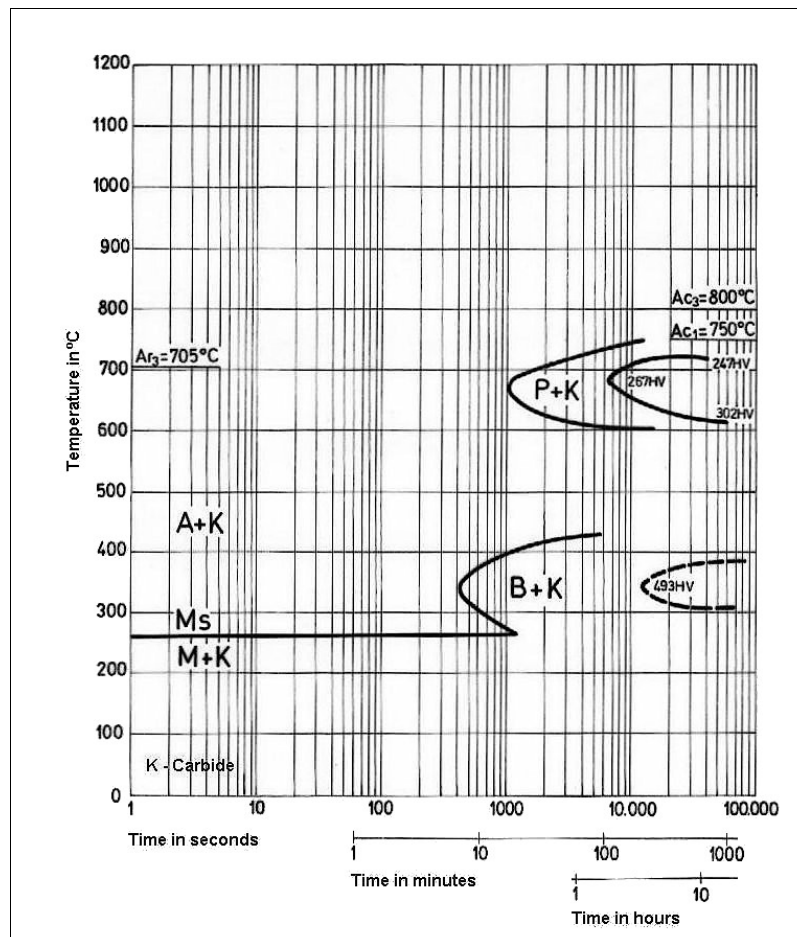
Coefficient of Linear Thermal Expansion 10⁻⁶ °C⁻¹

20-100°C	20-200°C	20-300°C	20-400°C	20-500°C	20-600°C	20-700°C
11.7	12.9	13.3	13.8	14.1	14.3	14.6

Continuous Cooling Transformation (CCT) Diagram



Time-Temperature Transformation (TTT) Diagram



Soft Annealing

Heat to 810-850°C, cool slowly in furnace. This will produce a maximum Brinell hardness of 229.

Stress Relieving

To relieve machining stresses for greater accuracy in hardening - first rough machine, then anneal below the critical at 649/677°C a minimum of one hour at temperature and cool slowly, then finish machine.

Hardening

Harden from a temperature of 930-960°C followed by air or oil quenching. Hardness after quenching is 59-61 HRC.

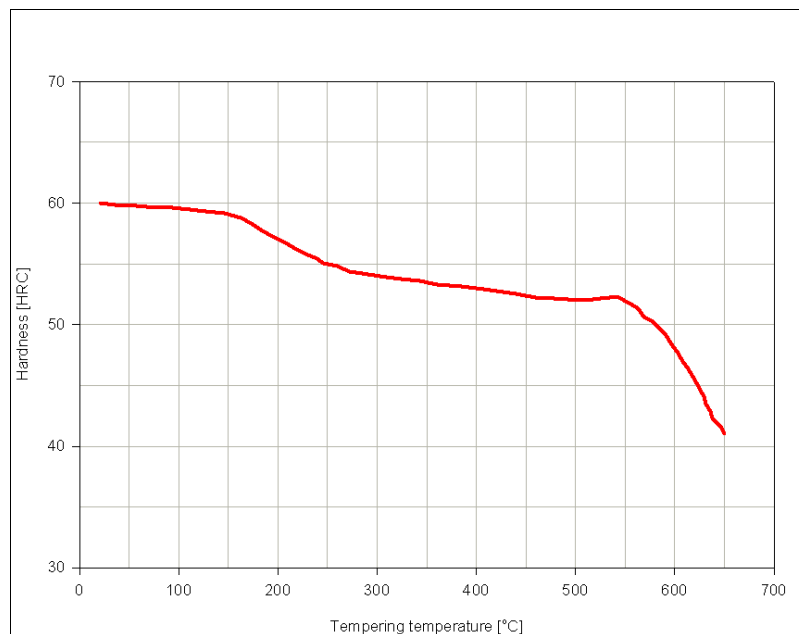
Tempering

Tempering temperature: 150-400°C.

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

100°C	200°C	250°C	300°C	400°C	500°C	550°C	600°C	650°C
59	57	55	54	53	52	52	48	41

Tempering Diagram



Forging

Hot forming temperature: 1066-1121°C.

Machinability

The machinability of S7 alloy may be rated at about 75/80 % of a 1 % carbon tool steel.

Corrosion Resistance

Corrosion resistance of this alloy is better than that of plain carbon steels. However it will rust unless given protective treatment.

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

Disclaimer

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