



## SIMOLD 2738 Steel

### Designation by Standards

Brand Name	Ravne	Mat. No.	DIN	EN	AISI/SAE
SIMOLD 2738	UTOPNIN	1.2738	40CrMnNiMo8-6-4	-	P20 Mod.

### Chemical Composition (in weight %)

C	Si	Mn	Cr	Mo	Ni	V	W	Others
0.40	0.30	1.45	1.95	0.20	1.05	-	-	-

### Description

This steel is in the category generally labeled as Mold Steels. Nickel and chromium are the alloying elements for hardness and toughness. Cold work tool steel with good machinability, excellent polishability, suitable for texturing. Improved through hardenability compared to Mat.No. 1.2311.

### Applications

Typically used for relatively low temperature applications such as die casting dies and injection molds, synthetic plastic moulds dies, for large moulds.

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

Modulus of elasticity [ $10^3 \times \text{N/mm}^2$ ]: 205

Density [ $\text{g/cm}^3$ ]: 7.80

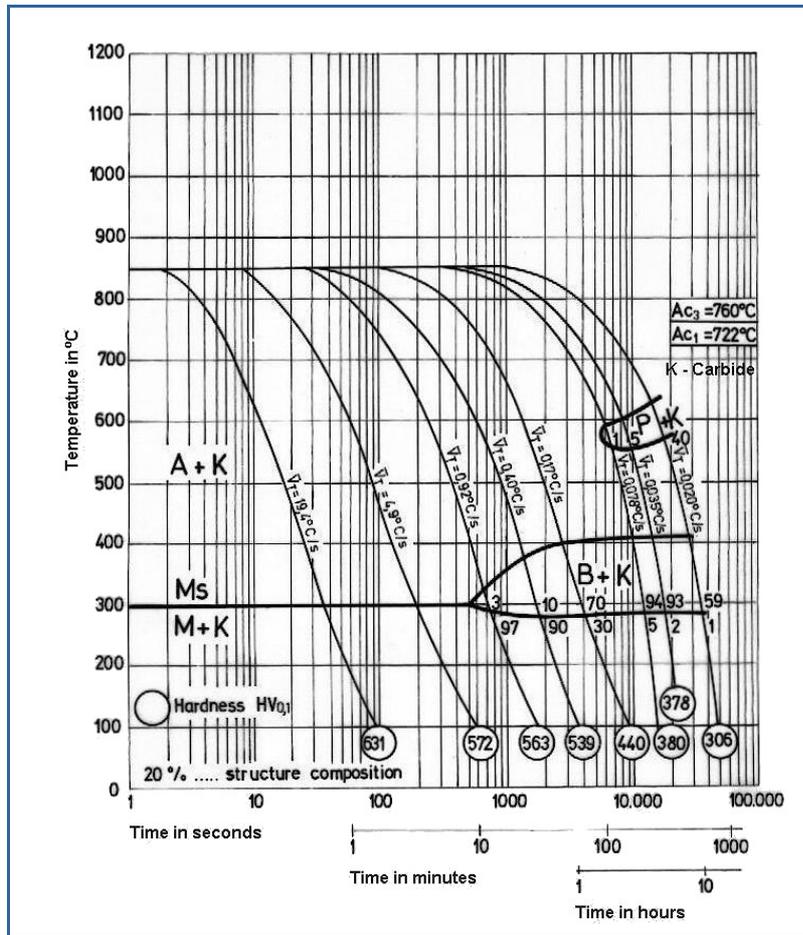
Thermal conductivity [ $\text{W/m.K}$ ]: 29.0

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
11.7	12.3	13.0	13.3	13.7	13.7	14.0

## Continuous Cooling Transformation (CCT) Diagram



### Soft Annealing

Heat to 710-740°C, cool slowly. This will produce a maximum Brinell hardness of 235.

### 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 840-880°C followed by oil, air or warm bath (180-220°C) quenching. Hardness after quenching is 52 HRC.

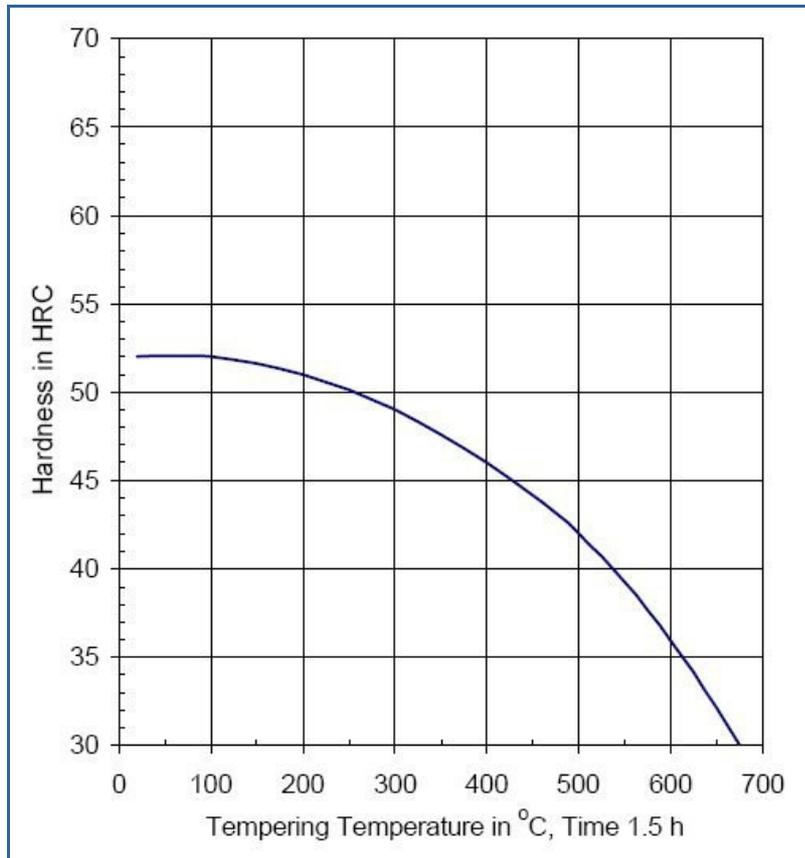
### Tempering

Tempering temperature: See the data below.

### Tempering Temperature (°C) vs. Hardness (HRC) vs. Tensile Strength (N/mm<sup>2</sup>)

100°C	200°C	300°C	400°C	500°C	600°C	700°C
52	51	49	46	42	36	28
1790	1730	1620	1480	1330	1140	920

## Tempering Diagram



### Forging

Hot forming temperature: 1093-898°C.

### Machinability

Machinability is relatively good at about 80% that of the W group water hardening steels.

### Welding

This alloy is weldable by conventional methods. Contact the alloy supplier for details and weld procedures.

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

### Disclaimer

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