



SIMOLD 2312 Steel

Designation by Standards

| Brand Name | Ravne | Mat. No. | DIN | EN | AISI/SAE |
|-------------|-------|----------|--------------|----|----------|
| SIMOLD 2312 | UTOPN | 1.2312 | 40CrMnMoS8-6 | - | - |

Chemical Composition (in weight %)

| C | Si | Mn | Cr | Mo | Ni | V | W | Others |
|------|------|------|------|------|----|---|---|--------|
| 0.40 | 0.40 | 1.50 | 1.90 | 0.20 | - | - | - | - |

Description

Cold working tool steel. It is generally supplied hardened and tempered to 880-1080 N/mm². Higher sulphur content provides good machinability at relatively high hardness. Possibility of nitriding. Steel has good polishability.

Applications

Tools for plastics processing and moulds for pressure die casting.

Physical properties (average values) at ambient temperature

Modulus of elasticity [10³ x N/mm²]: 210

Density [g/cm³]: 7.83

Thermal conductivity [W/m.K]: 33.3

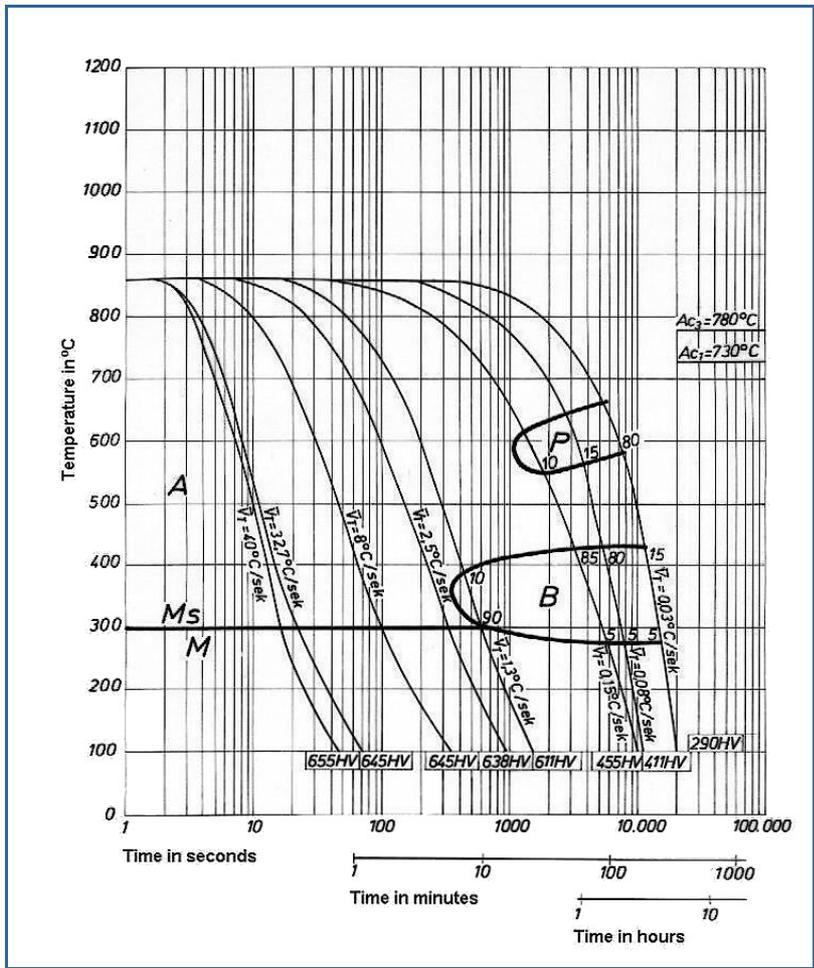
Electric resistivity [Ohm mm²/m]: 0.19

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

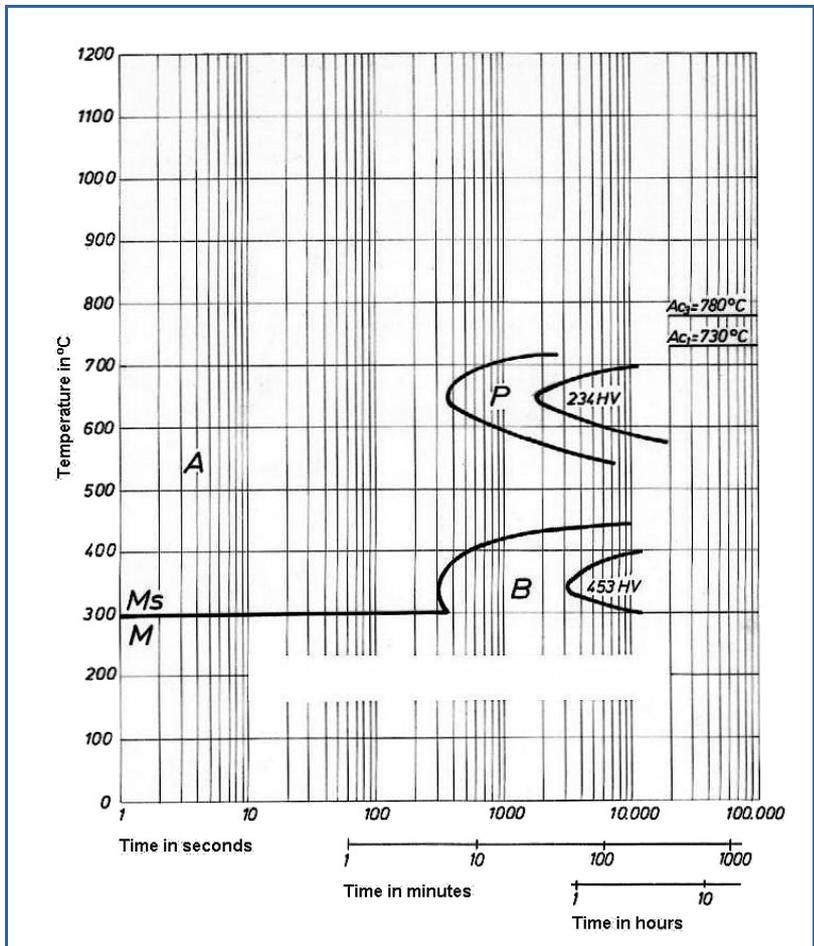
Coefficient of Linear Thermal Expansion 10⁻⁶ °C⁻¹

| 20-100°C | 20-200°C | 20-300°C | 20-400°C | 20-500°C | 20-600°C | 20-700°C |
|----------|----------|----------|----------|----------|----------|----------|
| 11.7 | 13.1 | 13.5 | 14.0 | 14.4 | 14.6 | 14.7 |

Continuous Cooling Transformation (CCT) Diagram



Time-Temperature Transformation (TTT) Diagram



Soft Annealing

Heat to 710-740°C, cool slowly in furnace. This will produce a maximum Brinell hardness of 230.

Stress Relieving

Stress relieving to remove machining stresses should be carried out by heating to approx. 650°C, holding for 1-2 hours at heat, followed by air cooling. This operation is performed to reduce distortion during heat treatment.

Hardening

Harden from a temperature of 830-880°C followed by oil or quenching or warm bath quenching 180-220°C. Hardness after quenching is 51 HRC.

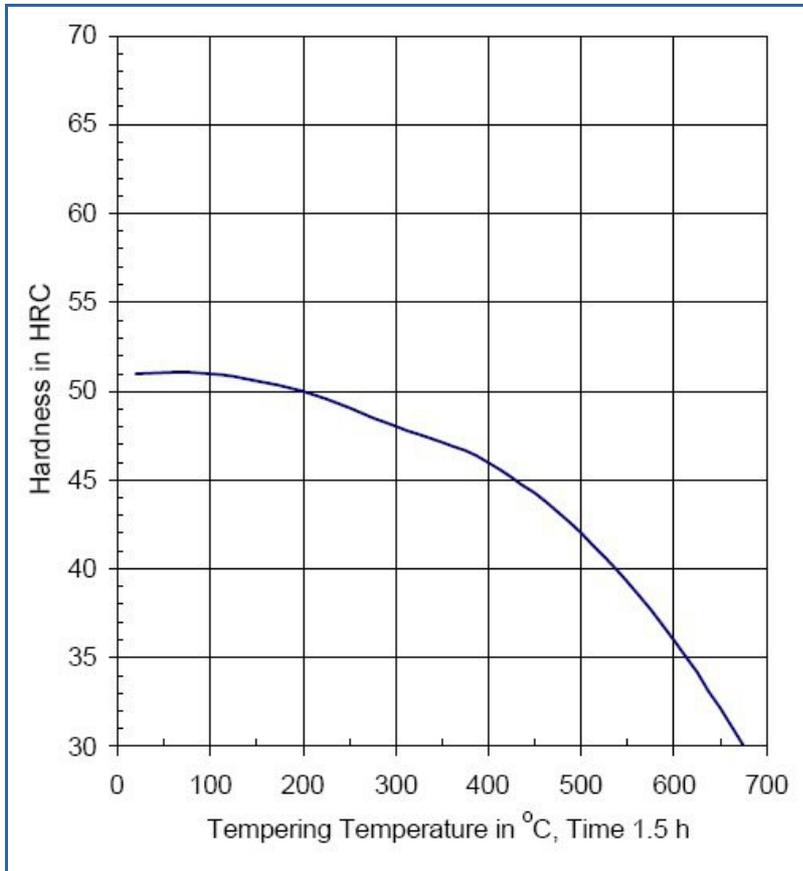
Tempering

Tempering temperature: See the data bellow.

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

| 100°C | 200°C | 300°C | 400°C | 500°C | 600°C | 700°C |
|-------|-------|-------|-------|-------|-------|-------|
| 51 | 50 | 48 | 46 | 42 | 36 | 28 |

Tempering Diagram



Forging

Hot forming temperature: 1050-850°C.

Machinability

No data.

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

Disclaimer

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