

# COLD WORK STEELS

## Available Product Shapes

- Long Products
- Plates

## Product Description

Various components for hard crushing, bulk material handling, ore dressing and processing equipment, such as crusher jaws, impact bars, impact plates, hammers, breaker plates, grizzly bars, liners, elevator buckets, dredger teeth, scraper teeth, bucket links, track rollers, chain rollers, etc.

## Properties

Austenitic manganese steel maintaining its characteristic properties by work hardening under impact and compressive stresses. Therefore it is not comparable with the hardenable steels in this form.

## Applications

- > Standard Parts (Molds, Plates, Pins, Punches)
- > Wear parts
- > General Components for Mechanical Engineering

Material designation		
1.3401	SEL	
X120Mn12	EN	
~SCMNH2	JIS	
~SCMNH3		

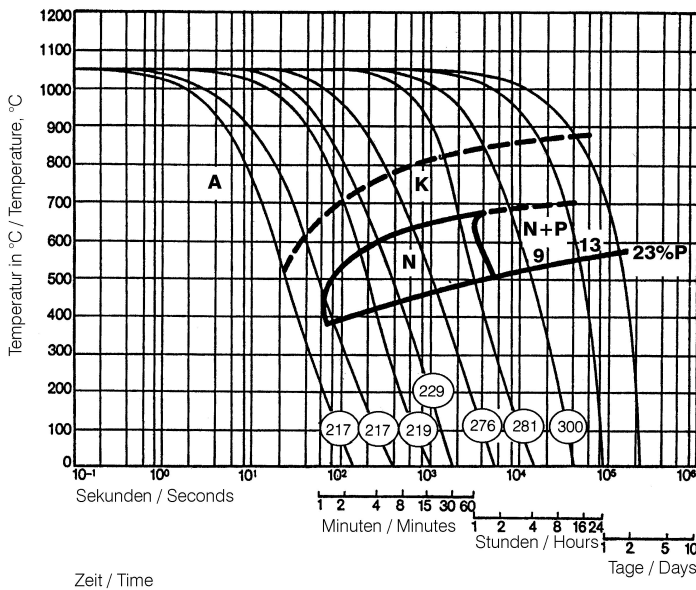
## Chemical composition (wt. %)

C	Si	Mn
1.23	0.40	12.50

## Delivery condition

Air Quenched	
Hardness	max. 200 HB   Approx. hardness value!! ; quenched from 1832 - 1922°F (1000 - 1050°C) - Air / Water
Ultimate tensile strength (UTS)	780 to 1130 MPa

**Continuous cooling CCT curves**



Austenitising temperature: 1050°C (1922°F)  
Holding time: 15 minutes

O Vickers hardness  
K... Grain boundary martensite  
N... Acicular carbide  
P... Pearlite

**Physical Properties**

Temperature (°C   °F)	20   68
Density (kg/dm <sup>3</sup>   lb/in <sup>3</sup> )	7.9   0.29
Thermal conductivity (W/(m.K)   BTU (IT) ft/hr/ft <sup>2</sup> /F)	13   7.51
Specific heat (J/(kg.K)   BTU (IT) lb/F)	500   119.42
Spec. electrical resistance (Ohm.mm <sup>2</sup> /m   10 <sup>-4</sup> Ohm.inch <sup>2</sup> /ft)	0.68   3.21
Modulus of elasticity (10 <sup>3</sup> N/mm <sup>2</sup>   10 <sup>3</sup> ksi)	190   27.56

**Thermal Expansions**

Temperature (°C   °F)	100   212	200   392	300   572	400   752	500   932
Thermal expansion (10 <sup>-6</sup> m/(m.K)   10 <sup>-6</sup> inch/(inch.F))	18.2   10.111	19.4   10.778	20.8   11.556	21.7   12.056	20.8   11.556

For more information see [www.voestalpine.com/boehler-edelstahl](http://www.voestalpine.com/boehler-edelstahl)

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