

# COLD WORK STEELS

## Available Product Variants

[Long Products\\*](#)
[Long Products\\*\\*](#)
[Plates](#)

\*) Presented data refer exclusively to long products. Please observe the detailed explanations at the end of the data sheet (pdf).

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## Product Description

BÖHLER K700 corresponds to the material 1.3401 (X120Mn12) and belongs to the group of austenitic hard manganese steels. Unlike most tool steels, BÖHLER K700 is not used in the hardened and tempered condition. Due to the forces occurring in service, the resulting work hardening of the surface results in a high resistance to abrasive wear. BÖHLER K700 is weldable. However, the heat input must be kept as low as possible to avoid embrittlement of the material. The material is used in abrasive blasting and mining applications such as crusher jaws, beater bars, grate bars, linings, excavator teeth and chain rollers.

## Process Melting

[Airmelted](#)

## Properties

- > Toughness & Ductility : high
- > Compressive strength : good
- > Dimensional stability : good
- > Edge Stability : good

## Applications

- > Standard Parts (Molds, Plates, Pins, Punches)
- > Machine knife (for producers)
- > Fine Blanking, Stamping, Blanking
- > Wear parts
- > Cold Forming
- > Components for Recycling Industry
- > General Components for Mechanical Engineering
- > Coining

## Technical data

Material designation	
1.3401	SEL
X120Mn12	EN
~SCMNH2	JIS
~SCMNH3	

## Chemical composition (wt. %)

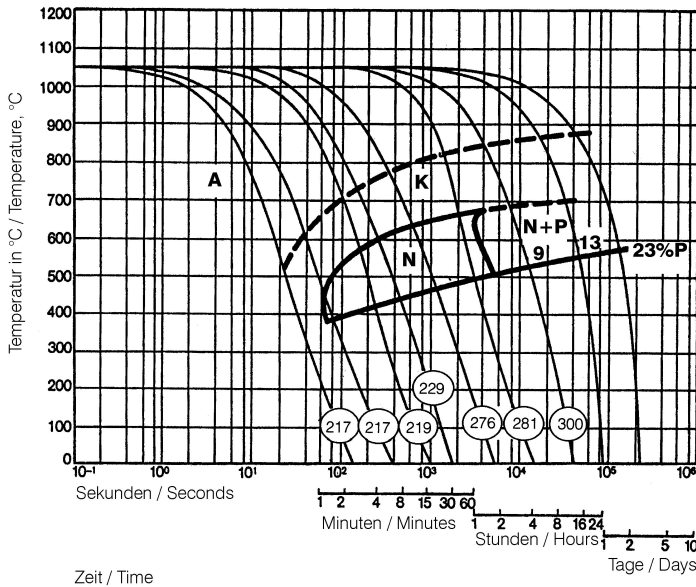
C	Si	Mn
1.23	0.40	12.50

### Delivery condition

**Air Quenched**

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

### Continuous cooling CCT curves



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

O Vickers hardness

9...23 phase percentages

A... Austenite  
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/ft h °F)	13   7.51
Specific heat (kJ/kg K   BTU/lb °F)	0.5   0.1194
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 between 20°C | 68°F and ...

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   10.1	19.4   10.8	20.8   11.6	21.7   12.1	20.8   11.6

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**Long Products:** For additional specifications and technical requirements, please contact our regional voestalpine BÖHLER sales companies.

**Sheet & Plates:** Product Variant may differ in terms of melting process, technical data, delivery, and surface condition as well as available product dimensions. Please contact voestalpine BÖHLER Bleche GmbH & Co KG.

*The data contained in this brochure is merely for general information and therefore shall not be binding on the company. We may be bound only through a contract explicitly stipulating such data as binding. Measurement data are laboratory values and can deviate from practical analyses. The manufacture of our products does not involve the use of substances detrimental to health or to the ozone layer.*

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