

# HEAT TREATABLE CORROSION RESISTANT STEELS

## Available Product Shapes

Long Products	Plates
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## Product Description

BÖHLER M303 is a corrosion resistant martensitic chromium steel, offering excellent toughness, corrosion and wear resistance. It is characterized by improved machinability and polishability.

## Properties

- Very high toughness & ductility
- Good wear resistance
- Very good machinability
- Good dimensional stability
- Very good polishability
- Very high corrosion resistance
- No heat treatment necessary
- Pre-hardened

## Applications

- |   |                               |                            |
|---|-------------------------------|----------------------------|
| > Components for Displays                       | > Blow Molding                | > Camera lenses            |
| > Comps. for Food processing and Animal Feed    | > Electronic Industry         | > Food processing Industry |
| > General Components for Mechanical Engineering | > Lamps/Lenses for Automotive | > Injection Molding        |
| > Packaging                                     | > Plastic Extrusion           | > Screws and Barrels       |
| > Hotrunner systems                             |                               |                            |

Material designation		Standards	
1.2316	SEL	4957	EN ISO
X38CrMo16	EN		
X38CrMo17			

## Chemical composition (wt. %)

C	Si	Mn	Cr	Mo	Ni	N
0.27	0.30	0.65	14.50	1.00	0.85	+

## Material characteristics

	Corrosion resistance	Machinability in as supplied condition	Polishability	Toughness	Wear resistance
<b>BÖHLER M303</b>	★★★★	★★★	★★★★★	★★★★★	★★★
<b>BÖHLER M300</b>	★★★★	★★★	★★	★★★	★★★
<b>BÖHLER M303 HIGH HARD</b>	★★★	★★	★★★★★	★★★	★★★★★
<b>BÖHLER M314</b>	★★	★★★★★	★	★★	★★
<b>BÖHLER M315</b>	★★	★★★★★	★	★★	★★

## Delivery condition

### Hardened and Tempered

Hardness	290 to 330 HB
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## Heat treatment

### Stress relieving

Temperature (°C   °F)	max. 400   752	Stress relieving after machining in the pre-hardened condition. After through-heating, soak for minimum 2 hours in a neutral atmosphere. Slow cooling in furnace with 20 °C/hr (68 °F/hr) down to 200 °C (390 °F), then in air.
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### Hardening and Tempering

Temperature (°C   °F)	1000   1832 to 1020   1868	Oil, N., salt bath (400 to 450 °C [750 – 840 °F]) After through-heating, hold for 15 to 30 minutes.
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## Physical Properties

<b>Temperature (°C   °F)</b>	<b>20   68</b>
Density (kg/dm <sup>3</sup>   lb/in <sup>3</sup> )	7.72   0.28
Thermal conductivity (W/(m.K)   BTU (IT) ft/hr/ft <sup>2</sup> /F)	22.8   13.17
Specific heat (J/(kg.K)   BTU (IT) lb/F)	465   111.06
Spec. electrical resistance (Ohm.mm <sup>2</sup> /m   10 <sup>-4</sup> Ohm.inch <sup>2</sup> /ft)	0.6   2.81
Modulus of elasticity (10 <sup>3</sup> N/mm <sup>2</sup>   10 <sup>3</sup> ksi)	218   31.62

## Thermal Expansions

Temperature (°C   °F)	100   212	200   392	300   572	400   752	500   932	600   1112
Thermal expansion (10 <sup>-6</sup> m/(m.K)   10 <sup>-6</sup> inch/(inch.F))	10.5   5.833	10.83   6.017	11.11   6.172	11.39   6.328	11.75   6.528	12.1   6.722

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

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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