

# HARDENABLE CORROSION RESISTANT STEELS

## Available Product Shapes

Long Products	Plates	Round Bar	Round Ground Bar
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## Product Description

An increase in productivity in high-tech mould-making can only be achieved by using mould steels with materials properties trimmed specifically towards the intended use. Due to the increased share of glass-fiber reinforced plastics, BÖHLER M340 ISOPLAST is also increasingly suitable for this kind of processing. In addition, this grade also provides good food resistance. Approvals for the food industry are available from voestalpine BÖHLER Edelstahl.

## Properties

- Good toughness & ductility
- High wear resistance
- Good machinability
- Very good dimensional stability
- Good polishability
- High corrosion resistance
- High micro-cleanliness

## Applications

- > Comps. for Food processing and Animal Feed
- > Plastic Extrusion
- > Medical
- > Components for Displays
- > Powder Pressing
- > Food processing Industry
- > Screws and Barrels
- > Camera lenses
- > Custom Hand Knives
- > Pill punching dies
- > Injection Molding
- > Standard Parts (Molds, Plates, Pins, Punches)
- > Packaging
- > Electronic Industry

## Chemical composition (wt. %)

C	Si	Mn	Cr	Mo	V	N
0.54	0.45	0.4	17.3	1.1	0.1	+

## Material characteristics

	Corrosion resistance	Machinability in as supplied condition	Polishability	Toughness	Wear resistance
<b>BÖHLER M340</b> <b>ISOPLAST®</b>	★★★	★★★	★★	★★	★★★
<b>BÖHLER M310</b> <b>ISOPLAST®</b>	★★★★	★★★★	★★	★★	★★
<b>BÖHLER M333</b> <b>ISOPLAST®</b>	★★★★★	★★★★	★★★★★	★★★★★	★★
<b>BÖHLER M368</b> <b>MICROCLEAN®</b>	★★★★	★★★	★★★★	★★★	★★★
<b>BÖHLER M390</b> <b>MICROCLEAN®</b>	★★	★	★★★	★★	★★★★
<b>BÖHLER M398</b> <b>MICROCLEAN®</b>	★★	★	★★★	★★	★★★★★
<b>BÖHLER M380</b> <b>ISOPLAST®</b>	★★★★★	★★★★	★★★★★	★★★★	★★★

## Delivery condition

### Soft annealed

Hardness	max. 260 HB
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## Heat treatment

### Stress relieving

Temperature (°C   °F)	650   1202	After temperature equalization, soak for 1 to 2 hours in neutral atmosphere. Slow cooling in furnace. After hardening and tempering, stress relieving has to be performed 50°C (90°F) below last tempering temperature.
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### Hardening and Tempering

Temperature (°C   °F)	980   1796 to 1000   1832	Holding time after temperature equalization: 15 to 30 minutes Quenching media: N <sub>2</sub> .
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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> )	7.67   0.28
Thermal conductivity (W/(m.K)   BTU (IT) ft/hr/ft <sup>2</sup> /F)	18.2   10.52
Specific heat (J/(kg.K)   BTU (IT) lb/F)	460   109.87
Spec. electrical resistance (Ohm.mm <sup>2</sup> /m   10 <sup>-4</sup> Ohm.inch <sup>2</sup> /ft)	-
Modulus of elasticity (10 <sup>3</sup> N/mm <sup>2</sup>   10 <sup>3</sup> ksi)	219   31.76

## Thermal Expansions

<b>Temperature (°C   °F)</b>	<b>100   212</b>	<b>200   392</b>	<b>300   572</b>	<b>400   752</b>	<b>500   932</b>
Thermal expansion (10 <sup>-6</sup> m/(m.K)   10 <sup>-6</sup> inch/(inch.F))	10.88   6.044	10.78   5.989	11.21   6.228	11.61   6.45	11.9   6.611

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

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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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