# PLASTIC MOULD STEELS

## PREHARDENED CORROSION RESISTANT STEEL

### Application Segments

Plastic Mould

### Available Product Variants

Long Products* | Plates

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

### Product Description

BÖHLER M303HIGHHARD corresponds to BÖHLER M303 in the High-Hard product variant. A variation in the heat treatment enables significantly higher wear resistance.

### Process Melting

Airmelted

### Properties

- Toughness & Ductility : high
- Wear Resistance : high
- Machinability : good
- Dimensional stability : good
- Polishability : very high
- Corrosion resistance : good
- No heat treatment necessary
- Prehardened

### Applications

- Blow Moulding
- Components for Displays
- Packaging industry
- Wear Applications
- Components for food processing and animal feed
- Screws and Barrels
- Electronic industry
- Hotrunner systems
- Pumping
- Injection Moulding
- Standard Parts (Moulds, Plates, Pins, Punches)
- Lamps/Lenses for Automotive
- Glasfibre reinforced plastics
- Mechanical Engineering

### Technical data

| Material designation | |
|---|---|
| ~1.2316 | SEL |
| X38CrMo16 | EN |

# BÖHLER M303 HIGHHARD

## Chemical composition (wt. %)

| C | Si | Mn | Cr | Mo | Ni | N |
|---|---|---|---|---|---|---|
| 0.27 | 0.3 | 0.65 | 14.5 | 1 | 0.85 | + |

## Delivery condition

### Hardened and Tempered

| | |
|---|---|
| Hardness (HB) | 350 to 390 |

## Heat treatment

### Stress relieving

| | | |
|---|---|---|
| Temperature | max. 500 °C | Prehardened material: When stress-relieving the material after processing, keep the material at temperature in a neutral atmosphere for at least 2 hours after complete heating, then slowly cool the oven at 20°C [68 °F]/hour to 200°C [392 °F], then cool in air. |
| Temperature | | Newly hardened and tempered material: Carry out the stress relief heat treatment at approx. 50°C [122 °F] below the tempering temperature. After complete heating, hold at temperature for 1 to 2 hours in a neutral atmosphere, then slowly cool down the furnace. |

## Physical Properties

| **Temperature (°C)** | **20** |
|---|---|
| Density (kg/dm³) | 7.72 |
| Thermal conductivity (W/(m.K)) | 22.8 |
| Specific heat (kJ/kg K) | 0.46 |
| Spec. electrical resistance (Ohm.mm²/m) | - |
| Modulus of elasticity (10³N/mm²) | 218 |

## Thermal Expansions between 20°C | 68°F and ...

| **Temperature (°C)** | **100** | **200** | **300** | **400** | **500** | **600** |
|---|---|---|---|---|---|---|
| Thermal expansion (10⁻⁶ m/(m.K)) | 10.5 | 10.8 | 11.1 | 11.4 | 11.7 | 12.1 |

If other available product variants are listed in addition to long products, please note that these may differ in terms of melting process, technical data, delivery and surface condition as well as available product dimensions. For mandatory technical specifications, other requirements and dimensions, please contact our regional voestalpine BÖHLER sales companies. 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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voestalpine
ONE STEP AHEAD.