BÖHLER

BÖHLER M303

HIGH HARD

# HEAT TREATABLE CORROSION RESISTANT STEELS

## Available Product Shapes

Long Products | Plates

## 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

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

## Applications

- Blow Molding
- Injection Molding
- Standard Parts (Molds, Plates, Pins, Punches)
- Components for Displays
- Lamps/Lenses for Automotive
- Comps. for Food processing and Animal Feed
- Plastic Extrusion
- Tool Holders (milling, drilling, turning & chucks)
- Electronic Industry
- Packaging
- Food processing Industry
- Screws and Barrels
- Camera lenses
- General Components for Mechanical Engineering
- Hotrunner systems

## Technical data

| Material designation | |
|---|---|
| 1.2316 | SEL |
| ~1.2316 | |
| X36CrMo17 | EN |
| X38CrMo17 | |

## Chemical composition (wt. %)

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

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HEAT TREATABLE CORROSION RESISTANT STEELS

# BÖHLER M303 HIGH HARD

## Material characteristics

| | Corrosion resistance | Machinability in as supplied condition | Polishability | Toughness | Wear resistance |
|---|---|---|---|---|---|
| BÖHLER M303 HIGH HARD | ★★★ | ★★ | ★★★★★ | ★★★ | ★★★★ |
| BÖHLER M300 | ★★★★ | ★★★ | ★★ | ★★★ | ★★★ |
| BÖHLER M303 | ★★★★ | ★★★ | ★★★★ | ★★★★ | ★★★ |
| BÖHLER M314 | ★★ | ★★★★ | ★ | ★★ | ★★ |
| BÖHLER M315 | ★★ | ★★★★★ | ★ | ★★ | ★★ |

## Delivery condition

### Hardened and Tempered

| | |
|---|---|
| Hardness | 350 to 390 HB |

## 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. |

### Hardening and Tempering

| | | |
|---|---|---|
| Temperature (°C \| °F) | 1000 \| 1832 to 1020 \| 1868 | Oil, $N_2$, salt bath (400 to 450 °C [750 – 840 °F]) After through-heating, hold for 15 to 30 minutes. |

## Physical Properties

| Temperature (°C \| °F) | 20 \| 68 |
|---|---|
| Density (kg/dm³ \| lb/in³) | 7.72 \| 0.28 |
| Thermal conductivity (W/(m.K) \| BTU (IT) ft/hr/ft²/F) | 22.8 \| 13.17 |
| Specific heat (J/(kg.K) \| BTU (IT) lb/F) | 460 \| 109.87 |
| Spec. electrical resistance (Ohm.mm²/m \| $10^{-4}$ Ohm.inch²/ft) | 0.6 \| 2.81 |
| Modulus of elasticity ($10^3$N/mm² \| $10^3$ksi) | 218 \| 31.62 |

## Thermal Expansions

| Temperature (°C \| °F) | 100 \| 212 | 200 \| 392 | 300 \| 572 | 400 \| 752 | 500 \| 932 | 600 \| 1112 |
|---|---|---|---|---|---|---|
| Thermal expansion ($10^{-6}$ m/(m.K) \| $10^{-6}$ 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/bohler-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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