PLASTIC MOULD STEELS

HARDENABLE CORROSION RESISTANT STEEL

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 M368 MICROCLEAN is a corrosion-resistant, martensitic chromium steel produced by powder metallurgy. Due to the alloy concept and the production route, the steel has a high wear resistance, high corrosion resistance and high toughness. In addition, BÖHLER M368 MICROCLEAN is approved for food and beverage contact.

Process Melting

Powder metallurgy

Properties

- Toughness & Ductility : high
- Wear Resistance : high
- Machinability : good
- Dimensional stability : very high
- Polishability : very high
- Corrosion resistance : very high
- Micro-cleanliness : very high

Applications

- Components for food processing and animal feed
- Screws and Barrels
- Packaging industry
- Electronic industry
- Consumer Goods - General
- Injection Molding
- Standard Parts (Molds, Plates, Pins, Punches)
- Components for Displays
- Pill punching dies
- Plastic Extrusion
- Medical
- Custom Hand Knives
- Glasfibre reinforced plastics

Chemical composition (wt. %)

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

Delivery condition

Soft annealed	
Hardness (HB)	max. 280

Heat treatment

Stress relieving

Temperature	max. 650 °C	Soft annealed material: For stress relief annealing after mechanical processing, hold the material at temperature in a neutral atmosphere for 1-2 hours after complete heating, then slowly cool the furnace at 20°C [68 °F]/hour to 200°C [392 °F], then cool in air.
Temperature		Hardened and tempered material: The temperature for stress relief annealing should be approx. 50°C [122 °F] below the previously selected tempering temperature. Other procedure as for stress relief annealing of soft annealed material.

Hardening and Tempering

Temperature	980 to 1,000 °C	For hardening, hold the material at the specified temperature for 15-30 minutes after complete heating and quench quickly. Cool the material to approx. 30°C [86 °F]. Immediately afterwards, the material can be deep-frozen for 2 hours (at -80°C [- 112 °F]) for residual austenite transformation. Tempering should also be carried out immediately.
Temperature	250 to 350 °C	Tempering treatment: For maximum corrosion resistance, temper the material once for 1 hour/20 mm material thickness, but for at least 2 hours. Achievable hardness - see tempering diagram.
Temperature	505 to 520 °C	Tempering treatment: For optimum toughness and wear resistance (without sub-zero cooling), temper the material 3 times for 1 hour/20 mm material thickness, but at least 2 hours. After each heat treatment step, cool the material to approx. 30°C [86 °F]. Achievable hardness - see tempering diagram.
Temperature	490 to 505 °C	Tempering treatment: For maximum hardness (with sub-zero cooling), temper the material 3 times for 1 hour/20 mm material thickness, but at least 2 hours. After each heat treatment step, cool the material to approx. 30°C [86 °F]. Achievable hardness - see tempering diagram.

Physical Properties

Temperature (°C)	**20**
Density (kg/dm^3)	7.7
Thermal conductivity (W/(m.K))	22.3
Specific heat (kJ/kg K)	0.46
Spec. electrical resistance (Ohm.mm^2/m)	-
Modulus of elasticity (10^{3}N/mm^2)	219

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

Temperature (°C)	**100**	**200**	**300**	**400**	**500**
Thermal expansion (10^{-6} m/(m.K))	10.8	11.6	11.9	11.56	11.87

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.

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ONE STEP AHEAD.