

TOOL STEELS

HARDENABLE CORROSION RESISTANT STEEL

Application Segments

Plastic Mould

Cold Work

Available Product Variants

Long Products

Product Description

Corrosion-resistant, martensitic chromium steel with high carbon-content, cobalt-, molybdenum- and vanadium-addition.

Properties

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

Applications

- > Packaging
- > Foodindustry like extrusion screws, can closing rolls
- > Screws for plastic injection and back flow valves
- > Cutting-typical instruments and knives
- > Moulds for plastic injection (PIM)
- > Pharmaceutical industry like pill punches and -dies
- > Extrusion screws for plastic processing
- > PIM and screws for processing of GF-reinforced plastics
- > Hotrunner systems

Technical data

Material designation	
1.4528	SEL
X105CrCoMo18-2	EN

Chemical composition (wt. %)

C	Si	Mn	Cr	Mo	V	Co
1.08	0.4	0.4	17.3	1.1	0.1	1.5

Delivery condition

Annealed

Hardness (HB)	max. 285
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Heat treatment

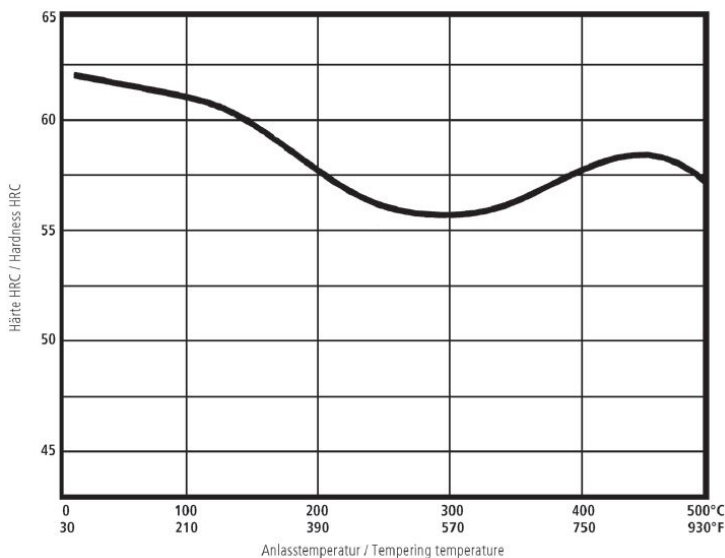
Stress relieving

Temperature	650 °C 1,202 °F	After warming up completely, keep at temperature for 1 to 2 hours in a neutral atmosphere. Slow furnace cooling
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Hardening and Tempering

Temperature	1,000 to 1,060 °C 1,832 to 1,940 °F	Holding time after complete soaking, max. 30 minutes / 25 mm cross section.
Temperature	150 to 350 °C 302 to 662 °F	Tempering treatment required after hardening to the desired working hardness - see tempering chart. Tempering of min. 2h after complete soaking. Tempering shall be made immediately after hardening. After each tempering a cooling RT shall be done.

Tempering chart



Hardening temperature: 1030°C / 1886°F

Tempering: 2x2h

Sample cross-section: Square 20mm

Hardness up to 59-61 HRC

Physical Properties

Temperature (°C °F)	20 68
Density (kg/dm ³ lb/in ³)	7.7 0.28
Thermal conductivity (W/(m.K) BTU/ft h °F)	15 8.67
Specific heat (kJ/kg K BTU/lb °F)	0.43 0.1027
Spec. electrical resistance (Ohm.mm ² /m 10 ⁻⁴ Ohm.inch ² /ft)	0.8 3.78
Modulus of elasticity (10 ³ N/mm ² 10 ³ ksi)	223 32.34

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

Temperature (°C °F)	100 212	200 392	300 572	400 752	500 932
Thermal expansion (10^{-6} m/(m.K) 10^{-6} inch/inch.°F)	10.4 5.8	10.8 6	11.2 6.2	11.6 6.4	11.9 6.6

For additional specifications and technical requirements, please contact our regional voestalpine BÖHLER sales companies.

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