

HOT WORK TOOL STEELS

Available Product Shapes

Flat Bar	Round Bar
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Product Description

Highly fatigue loaded components in motorsport and advanced engineering industries, e.g. cam shafts, gudgeon pins, con rods, crankshafts, bolts and drive shafts.

Process Melting

Airmelted + VAR + VAR

Properties

- Super-high strength to avoid plastic deformation and ensure an optimized fatigue strength
- High dtiffness: relation between density and strength
- High tempering temperatures allow for a comprehensive range of surface treatments

Applications

- > Automotive Racing > Coining > General Components for Mechanical Engineering

Material designation	
BÖHLER patent	Market grade

Chemical composition (wt. %)

C	Si	Mn	Cr	Mo	V
0.5	0.2	0.45	4.6	3	0.75

Delivery condition

Annealed	
Hardness	max. 205 HB

Heat treatment

Annealing

Temperature (°C °F)	750 1382 to 800 1472	Holding time 6 to 8 hours. Slow, controlled cooling in furnace at a rate of 10 to 20 °C/h (50 to 68 °F/h) down to approx. 600 °C (1100°F), further cooling in air.
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Stress relieving

Temperature (°C °F)	650 1202 to 700 1292	After through-heating, soak for 1 to 2 hours in a neutral atmosphere. Cool slowly in furnace.
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Hardening and Tempering

Temperature (°C °F)	1050 1922 to 1070 1958	Depending on the required properties oil, salt bath 500 to 550 °C (932 to 1022 °F), polymere, air, vacuum furnace with gas quenching. Holding time after through-heating: 15 to 30 minutes. After hardening, tempering to the desired working hardness, see tempering chart.
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Thermal Expansions

Temperature (°C °F)	100 212	200 392	300 572	400 752	500 932	600 1112	700 1292
Thermal expansion (10 ⁻⁶ m/(m.K) 10 ⁻⁶ inch/(inch.F))	11.1 6.167	11.5 6.389	11.9 6.611	12.3 6.833	12.8 7.111	13.2 7.333	13.6 7.556

For more information see www.voestalpine.com/boehler-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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ONE STEP AHEAD.