

HIGH SPEED STEELS

Application Segments

Cutting Tools

Available Product Variants

Wire

Product Description

BÖHLER S594 MICROCLEAN is a powder metallurgical molybdenum-tungsten-vanadium high-speed steel alloyed with 8% cobalt, offering a working hardness of up to approximately 68 HRC. It combines excellent cutting edge retention and high hot hardness with good toughness, making it ideal for temperature-stressed machining applications and bimetal saw bands.

Delivery form: Rolled wire

Properties

- > Toughness & Ductility : high
- > Wear Resistance : high
- > Compressive strength : high
- > Edge Stability : high
- > Grindability : high
- > Hot Hardness (red hardness) : high

Applications

- > Special Cutting Tools

Technical data

Material designation		
1.3247	SEL	
HS2-9-1-8	EN	

Chemical composition (wt. %)

C	Si	Mn	Cr	Mo	V	W	Co
1.12	0.3	0.3	3.9	9.5	1.2	1.5	8

Material characteristics

	Compressive strength	Grindability	Red hardness	Toughness	Wear resistance	Edge Stability
BÖHLER S594 MICROCLEAN	★★★	★★★	★★★★★	★★★★★	★★★	★★★
BÖHLER S793 MICROCLEAN	★★★	★★★	★★★★★	★★★	★★★	★★★

Delivery condition

Annealed

Tensile Strength (MPa)	max. 860
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Heat treatment

Annealing

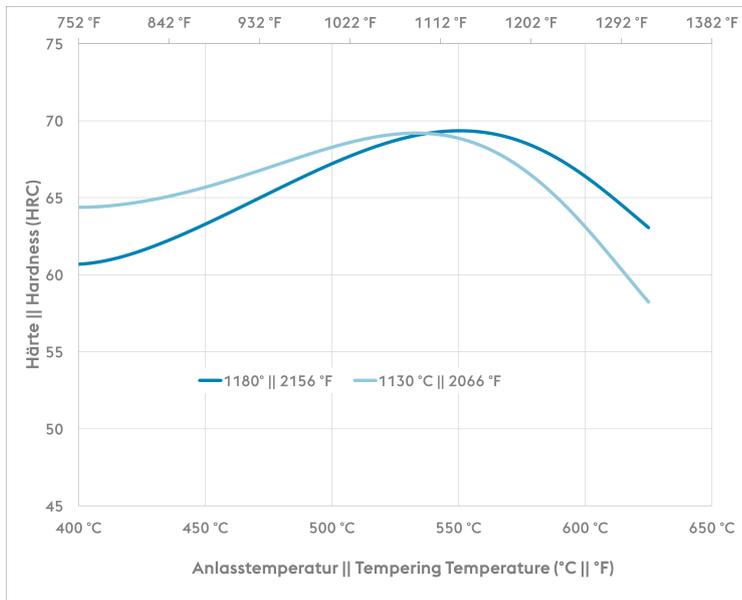
Temperature	770 to 840 °C	Controlled slow cooling in furnace (10 to 20°C / h) to approx. 600°C (1110°F), air cooling.
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Stress relieving

Temperature	600 to 650 °C	Slow cooling furnace. To relieve stresses set up by extensive machining or in tools of intricate shape. After through heating, hold in neutral atmosphere for 1 to 2 hours.
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Hardening and Tempering

Temperature	1,130 to 1,180 °C	Salt bath, vacuum Preheating: 1st stage ~ 500 °C, 2nd stage ~ 850 °C, 3rd stage ~1050 °C Austenitising: 1130 - 1180 °C, holding time after complete heating 80 seconds, maximum 150 seconds, to avoid material damage due to overheating. Quenching: oil, warm bath (500 - 550 °C), gas In continuous heat treatment, temperatures and times may vary depending on the specific heat treatment process.
Temperature	550 to 570 °C	Slow heating to tempering temperature immediately after austenitising. Dwell time in the furnace at least 2 hours Slow cooling to room temperature 3 tempering cycles recommended Hardness see tempering chart In continuous heat treatment, temperatures and times may vary depending on the specific heat treatment process.



Vacuum

Holding time 3 x 2 hours

Specimen size: square 25 mm

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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ONE STEP AHEAD.