

# HIGH SPEED STEELS

## Available Product Shapes

[Long Products](#)
[Plates](#)

## Product Description

### BÖHLER S630 – "The economical one"

Tungsten-molybdenum high-speed steel with aluminum alloy for great toughness and good machinability. Universally usable for taps and drill bits, reamers, metal saws, mills of all types, and woodworking tools.

## Properties

High Toughness & Ductility

High Wear Resistance

High Compressive strength

Very high Edge Stability

Good Grindability

High Hot Hardness

## Applications

- > Cold Forming / Coining
- > Rolling
- > Standard Parts (Molds, Plates, Pins, Punches)
- > Fine Blanking, Stamping, Blanking
- > Shearing / Machine Knives
- > Twist Drills and Taps
- > Powder Pressing
- > Special Cutting Tools
- > Wear parts

### Material designation

1.3330	SEL
HS 4-4-2 Al	Market grade

## Chemical composition

C	Cr	Mo	V	W	Al
0,95	4,00	4,00	2,00	4,00	0,50

## Material characteristics

	Compressive strength	Grindability	Red hardness	Toughness	Wear resistance	Edge Stability
<b>BÖHLER S630</b>	★★★	★★★	★★★	★★	★★	★★★
<b>BÖHLER S200</b>	★★★	★★	★★★	★★	★★★	★★
<b>BÖHLER S400</b>	★★★	★★★	★★★	★★★	★★	★★
<b>BÖHLER S401</b>	★★	★★★	★★	★★★	★★	★★★
<b>BÖHLER S404</b>	★★	★★★	★★	★★★	★★	★★
<b>BÖHLER S500</b>	★★★★	★★★	★★★★	★★	★★★	★★★
<b>BÖHLER S600</b>	★★★	★★★	★★★	★★	★★	★★★
<b>BÖHLER S700</b>	★★★	★★	★★★★	★★	★★★★	★★★★
<b>BÖHLER S705</b>	★★★	★★★	★★★★	★★	★★	★★★★

## Delivery condition

### Annealed

Hardness	max. 280 HB
Tensile Strength	max. 950 / 137.781 N/mm <sup>2</sup> / KSI

## Heat treatment

### Annealing

Temperature (°C / °F)	770 / 1418 - 840 / 1544	Controlled slow cooling in furnace (10 - 20°C / h / (50 - 68°F 7 h) to approx. 600°C (1110°F), air cooling.
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### Stress relieving

Temperature (°C / °F)	600 / 1112 - 650 / 1202	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 (°C / °F)	1180 / 2156 - 1200 / 2192	Oil, air, salt bath (500 - 550°C (930 - 1020°F)), gas - recommended for cutting applications.
Temperature (°C / °F)	1050 / 1922 - 1100 / 2012	Oil, air, salt bath (500 - 550°C (930 - 1020°F)), gas - recommended for coldwork applications.

## Physical Properties

Temperature (°C / °F)	20 / 68
Density (kg/dm <sup>3</sup> / lb/in <sup>3</sup> )	7.88 / 0.28
Thermal conductivity (W/(m.K) / BTU (IT) ft/hr/ft <sup>2</sup> /F)	18.8 / 10.86
Specific heat (J/(kg.K) / BTU (IT) lb/F)	432 / 103.18
Spec. electrical resistance (Ohm.mm <sup>2</sup> /m / Ohm.inch <sup>2</sup> /ft)	0.54 / 0
Modulus of elasticity (10 <sup>3</sup> N/mm <sup>2</sup> / 10 <sup>3</sup> ksi)	217 / 31.47

For more information see [www.voestalpine.com/boehler-edelstahl](http://www.voestalpine.com/boehler-edelstahl)

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ONE STEP AHEAD.