

# ACEROS RÁPIDOS

## Formatos disponibles

Productos largos\*
Chapas

\* ) Presented data refer exclusively to long products. Please observe the detailed explanations at the end of the data sheet (pdf).

## Descripción

### BÖHLER S500 - "El refractario"

Esta calidad de acero rápido convencional se destaca gracias a sus excelentes propiedades de corte y muy buena dureza en caliente.

## Método de obtención

Convencional

## Propiedades

- > Dureza y Ductilidad : buena
- > Resistencia al desgaste : alto
- > Resistencia a la compresión : muy alta
- > Estabilidad de los bordes : alto
- > Afilabilidad : buena
- > Dureza en caliente (dureza roja) : muy alta

## Aplicaciones

- > Hojas para sierras
- > Puntas de brocas
- > Brocas helicoidales y grifos
- > Broches y escariadores
- > Talladura de engranajes, herramientas de rasurado y perfiladoras
- > Thread rolling (ES)
- > Conformado en frío / acuñado
- > Herramientas de corte especiales

## Datos técnicos

Designación		Estándares	
1.3247	SEL	4957	EN ISO
HS2-9-1-8	EN		

## Composición Química

C	Si	Mn	Cr	Mo	V	W	Co
1,1	0,5	0,2	3,9	9,2	1,1	1,5	7,8

## Características

	Resistencia a la compresión	Aptitud para el rectificado	Dureza en caliente	Tenacidad	Resistencia al desgaste	Retención del filo de la navaja
<b>BÖHLER S500</b>	★★★★	★★★★	★★★★★	★★	★★★★	★★★★
<b>BÖHLER S200</b>	★★★	★★	★★★★	★★	★★★★	★★
<b>BÖHLER S400</b>	★★★	★★★★	★★★★	★★★★	★★	★★
<b>BÖHLER S401</b>	★★	★★★★	★★	★★★★	★★	★★★★
<b>BÖHLER S404</b>	★★	★★★★	★★	★★★★	★★	★★
<b>BÖHLER S430</b>	★★	★★★★	★★	★★★★	★★	★★
<b>BÖHLER S600</b>	★★★	★★★★	★★★★	★★	★★	★★★★
<b>BÖHLER S607</b>	★★★	★★★★	★★★★	★★	★★★★	★★★★
<b>BÖHLER S630</b>	★★★	★★★★	★★★★	★★	★★	★★★★
<b>BÖHLER S705</b>	★★★	★★★★	★★★★★	★★	★★	★★★★★
<b>BÖHLER S730</b>	★★★	★★★★	★★★★★	★★	★★	★★★★★

## Estado de suministro

### recocido

Dureza (HB)	máx. 280   Drawn max 300 HB
Resistencia a la tracción (N/mm <sup>2</sup> )	máx. 6.964
Resistencia a la cesión (MPa)	mín. 3

## Tratamiento térmico

### Recocido

Temperatura	770 a 840 °C	Controlled slow cooling in furnace (10 to 20°C / h) to approx. 600°C (1110°F), air cooling.
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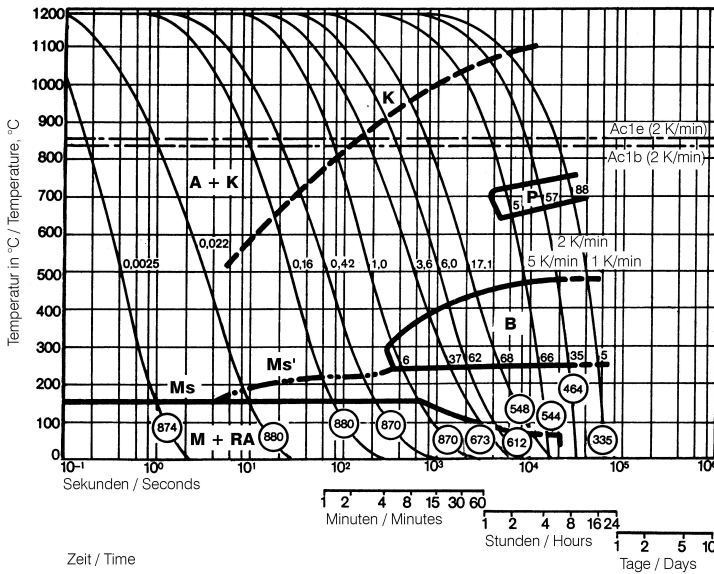
### Alivio de tensiones

Temperatura	600 a 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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### Temple y revenido

Temperatura	1.130 a 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
Temperatura	550 a 570 °C	Slow heating to tempering temperature immediately after austenitising.    Dwell time in the furnace 1 hour per 20 mm material thickness (at least 1 hour)    Slow cooling to room temperature    3 tempering cycles recommended    Hardness see tempering chart

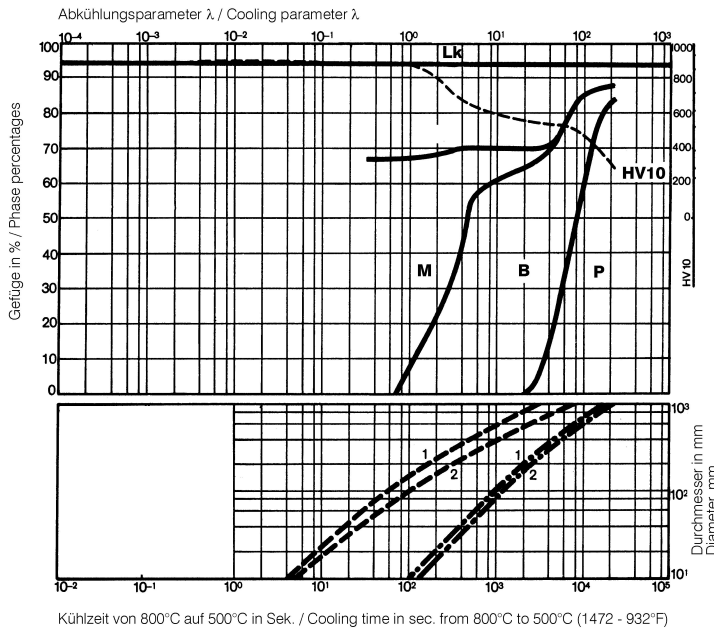
Continuous cooling CCT curves



Austenitising temperature: 1180°C (2156°F)  
Holding time: 180 seconds

- A....Austenite
- B....Bainite
- K....Carbide
- P....Pearlite
- M....Martensite
- RA...Retained Austenite

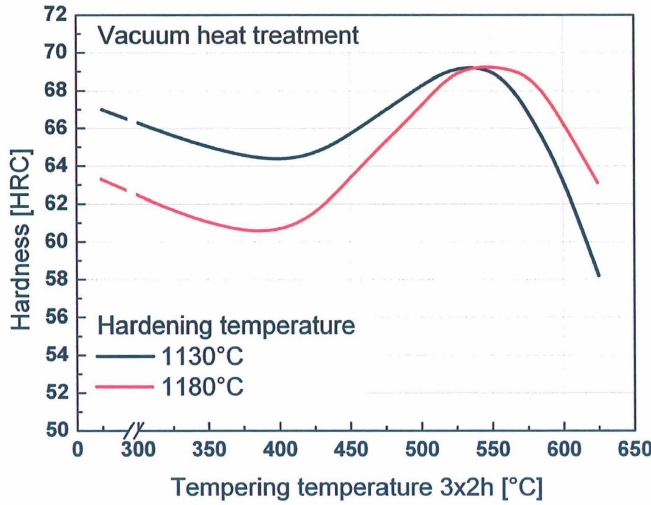
Quantitative phase diagram



- A....Austenite
- B....Bainite
- K....Carbide
- P....Pearlite
- M....Martensite
- RA...Retained Austenite

- 1....Edge or Face
- 2....Core
- 3....Jominy test: distance from quenched end

**Tempering Chart**



Holding time 3 x 2 hours  
Specimen size: square 25 mm

**Propiedades físicas**

Temperatura (°C)	20
Densidad (kg/dm <sup>3</sup> )	8,1
Conductividad térmica (W/(m.K))	20
Calor específico (kJ/kg K)	0,429
Resistencia eléctrica específica (Ohm.mm <sup>2</sup> /m)	0,52
Módulo de elasticidad (10 <sup>3</sup> N/mm <sup>2</sup> )	220

**Expansión térmica**

Temperatura (°C)	100	200	300	400	500	600	700
Expansión térmica (10 <sup>-6</sup> m/(m.K))	11	11,5	11,9	12,3	12,4	12,5	12,5

**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.

*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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**voestalpine**

ONE STEP AHEAD.