

# ACEROS RÁPIDOS

## Formatos disponibles

Productos largos

## Descripción

### BÖHLER S401 - "El convencional"

Esta calidad pertenece al grupo de aceros rápidos al molibdeno y ofrece un buen rendimiento con buena rentabilidad.

## Método de obtención

Convencional

## Propiedades

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

## Aplicaciones

- > Brocas helicoidales y grifos
- > Thread rolling (ES)
- > Broches y escariadores

## Datos técnicos

Designación	Estándares
1.3346 SEL	A600 ASTM
M1 AISI	
HS2-9-1 EN	

## Composición Química

C	Si	Mn	Cr	Mo	V	W
0,84	0,4	0,3	3,8	8,6	1,2	1,8

## Características

	Resistencia a la compresión	Aptitud para el rectificado	Dureza en caliente	Tenacidad	Resistencia al desgaste	Retención del filo de la navaja
<b>BÖHLER S401</b>	★★	★★★	★★	★★★	★★	★★★
<b>BÖHLER S200</b>	★★★	★★	★★★	★★	★★★	★★
<b>BÖHLER S400</b>	★★★	★★★	★★★	★★★	★★	★★
<b>BÖHLER S404</b>	★★	★★★	★★	★★★	★★	★★
<b>BÖHLER S405</b>	★★★	★★★	★★	★★★	★★	★★
<b>BÖHLER S430</b>	★★	★★★	★★	★★★	★★	★★
<b>BÖHLER S500</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
-------------	----------

## Tratamiento térmico

### Recocido

Temperatura	770 a 840 °C	Controlled slow cooling in furnace (10 - 20°C / h (50 - 68°F / h) to approx. 600°C (1110°F), air cooling.
-------------	--------------	---

### Alivio de tensiones

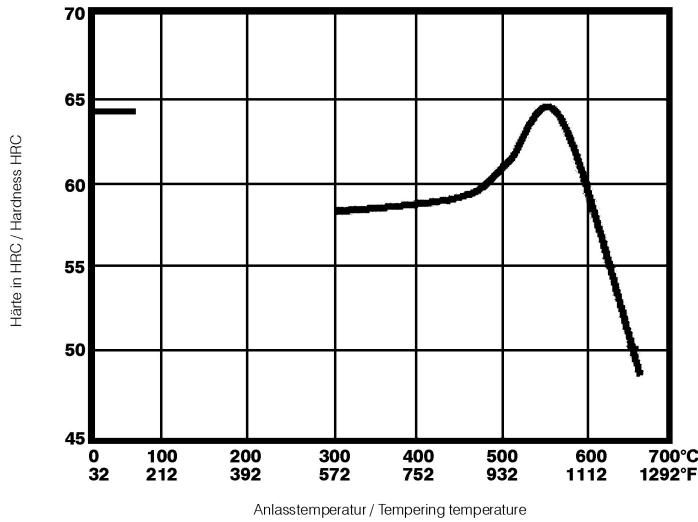
Temperatura	600 a 650 °C	Slow cooling furnace.    To relieve stresses set up by extensive machining or in tools of intricate shape.    After through heating, hold in neutral atmosphere for 1 to 2 hours.
-------------	--------------	---

### Temple y revenido

Temperatura	1.170 a 1.210 °C	Salt bath, vacuum    Preheating: 1st stage ~ 500 °C, 2nd stage ~ 850 °C, 3rd stage ~1050 °C    Austenitising: 1170 - 1210 °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
-------------	--------------	---

### 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
Conductividad térmica (W/(m.K))	19
Calor específico (kJ/kg K)	0,46
Resistencia eléctrica específica (Ohm.mm <sup>2</sup> /m)	0,6
Módulo de elasticidad (10 <sup>3</sup> N/mm <sup>2</sup> )	217

### 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

For additional specifications and technical requirements, 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.*

**voestalpine BÖHLER Edelstahl GmbH & Co KG**  
 Mariazeller Straße 25  
 8605 Kapfenberg, AT  
 T. +43/50304/20-0  
 E. info@bohler-edelstahl.at  
<https://www.voestalpine.com/bohler-edelstahl/de/>

**voestalpine**

ONE STEP AHEAD.