BÖHLER

BÖHLER S290 MICROCLEAN®

ACEROS RÁPIDOS

Formatos disponibles

Productos largos* | Chapas

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

Descripción

BÖHLER S290 MICROCLEAN - "El duro"

Este acero pulvimetalúrgico se encuentra entre el acero al carbono y el acero rápido y gracias a su inusual aleación alcanza una dureza de hasta 70 HRC. Además de su dureza en caliente y buena resistencia al desgaste, presenta una resistencia a la compresión que resalta como una de las principales características de este acero.

Método de obtención

Pulvimetalurgia

Propiedades

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

Aplicaciones

- Conformado en frío / acuñado
- Compactación de polvo
- Corte fino / Troquelado / Estampado
- Herramientas de corte especiales
- Talladura de engranajes, herramientas de rasurado y perfiladoras
- Componentes de desgaste

Composición Química

C	Cr	Mo	V	W	Co
2,0	3,8	2,5	5,1	14,3	11,0

Características

	Resistencia a la compresión	Aptitud para el rectificado	Dureza en caliente	Tenacidad	Resistencia al desgaste	Retención del filo de la navaja
BÖHLER S290 MICROCLEAN®	★★★★★	★	★★★★	★★	★★★★★	★★★★
BÖHLER S390 MICROCLEAN®	★★★★	★★★	★★★★	★★★★	★★★★	★★★★
BÖHLER S393 MICROCLEAN®	★★★★	★★★	★★★★	★★★★	★★★★	★★★★
BÖHLER S590 MICROCLEAN®	★★★★	★★★	★★★★	★★★	★★★	★★★
BÖHLER S592 MICROCLEAN®	★★★★	★★★	★★★★	★★★	★★★	★★★
BÖHLER S690 MICROCLEAN®	★★★	★★★	★★	★★★★★	★★★	★★
BÖHLER S692 MICROCLEAN®	★★★	★★★	★★	★★★★★	★★★	★★
BÖHLER S790 MICROCLEAN®	★★★	★★★	★★	★★★★	★★	★★★
BÖHLER S792 MICROCLEAN®	★★★	★★★	★★	★★★★	★★	★★★
BÖHLER S793 MICROCLEAN®	★★★	★★★	★★★★	★★★	★★★	★★★

Estado de suministro

recocido

Dureza (HB)	máx. 350

Tratamiento térmico

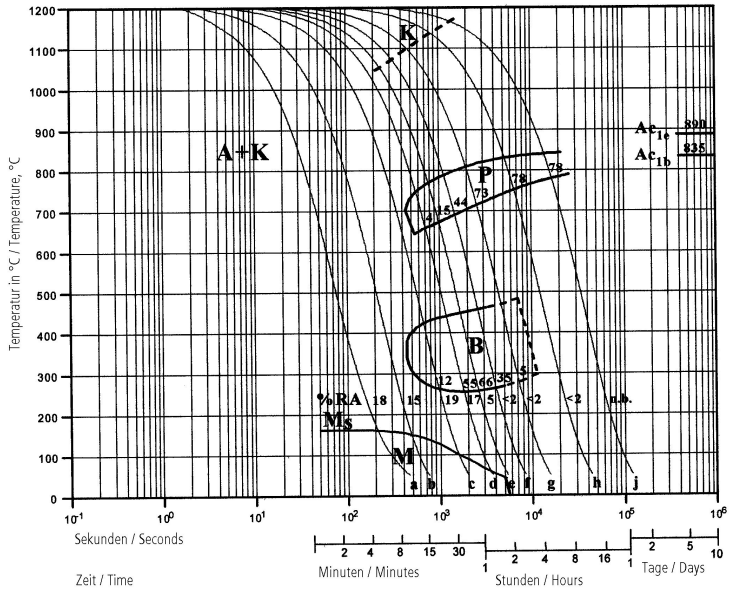
Alivio de tensiones

Temperatura	600 a 650 °C	Slow cooling in 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	1.150 a 1.210 °C	Salt bath, vacuum || Preheating: 1st stage ~ 500 °C (930 °F), 2nd stage ~ 850 °C (1560 °F), 3rd stage ~1050 °C (1920 °F)|| Austenitising: 1150 - 1210 °C (2100 °F - 2210 °F), holding time after complete heating 80 seconds, maximum 150 seconds, to avoid material damage due to overheating. || Quenching: oil, warm bath (500 - 550 °C (930 °F - 1020 °F)), gas
Temperatura	550 a 580 °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 between each tempering step || 3 tempering cycles recommended || Hardness see tempering chart

Continuous cooling CCT curves

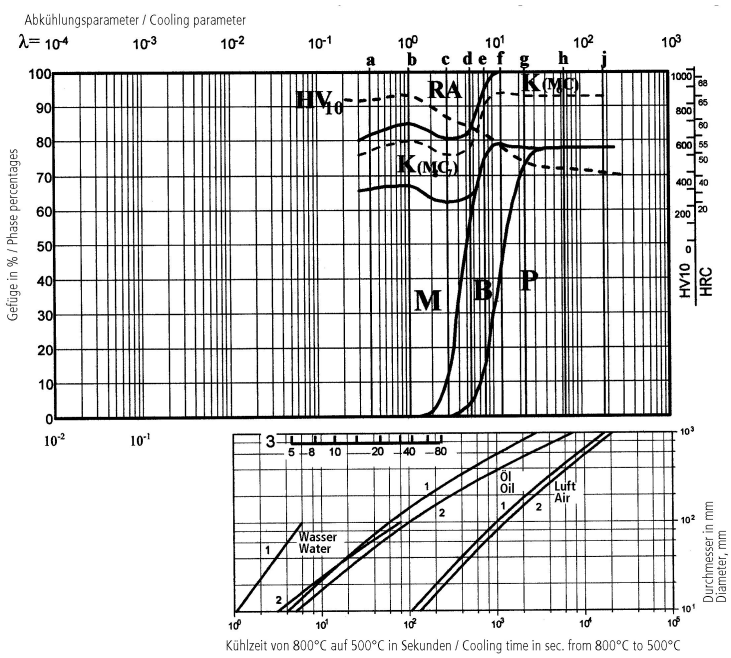


Austenitising temperature: 1210°C (2210°F)
Holding time: 180 seconds

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

Sample	λ	HV10	Sample	λ	HV10
a	0,4	842	f	12,5	562
b	1,1	864	g	23,0	476
c	3,0	737	h	65,0	444
d	5,5	678	j	180,0	418
e	8,0	626			

Quantitative phase diagram



A....Austenite
B....Bainite
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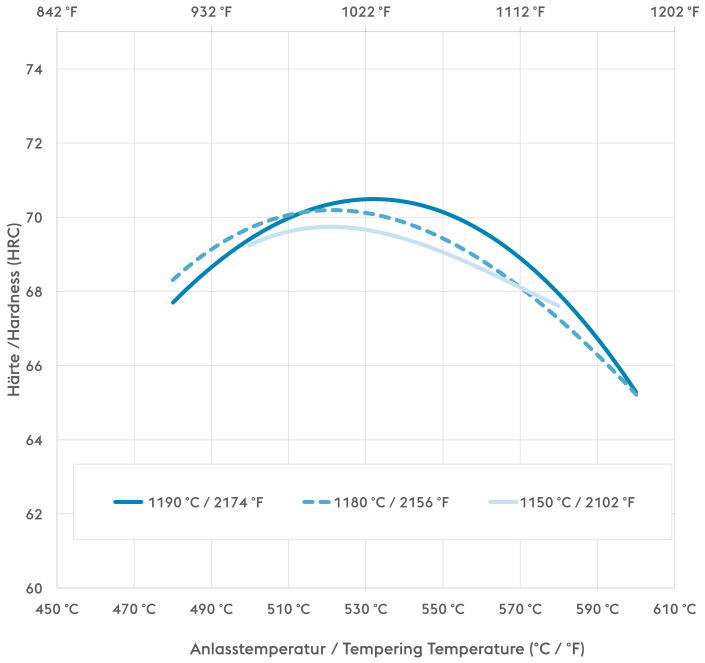
P....Perlite
M....Martensite
RA...Retained Austenite

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

Tempering Chart



Holdingtime 3x2 hours

Specimensize: square 25mm

Propiedades físicas

Temperatura (°C)	20
Densidad (kg/dm^3)	8,3
Conductividad térmica (W/(m.K))	19
Calor específico (kJ/kg K)	0,41
Resistencia eléctrica específica (Ohm.mm^2/m)	0,56
Módulo de elasticidad (10^{3}N/mm^2)	242

Expansión térmica

Temperatura (°C)	100	200	300	400	500	600	700
Expansión térmica (10^{-6} m/(m.K))	9,6	10	10,3	10,6	10,9	11,2	11,6

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.

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ONE STEP AHEAD.