

SNELDRAAISTAAL

Beschikbare uitvoeringen

 Stafstaal*

 Plaat

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

Product omschrijving

BÖHLER S790 MICROCLEAN – "De 1e MICROCLEAN"

Poedermetallurgisch geproduceerd snelstaal met zeer goede warmhardheid, drukbelastbaarheid en slijtvastheid. Dankzij de PM-technologie goede taaiheid en uitstekende verwerkbaarheid, bijv. zeer goede slijpbaarheid.

Smeltroute

 Powder metallurgy

Eigenschappen

- > Taaiheid & Vervormbaarheid : hoog
- > Slijtageweerstand : goed
- > Samenpersende sterkte : goed
- > Randstabiliteit : goed
- > Slijpbaarheid : hoog
- > Hete hardheid (rode hardheid) : goed

Toepassingen

- > Autoracen
- > Persen van poeders
- > Speciale snijwerktuigen
- > Trekfrezen en ruimers
- > Walsen
- > Slijtstukken
- > Koudvervorming / munten
- > Knippen / machinale messen

Technische gegevens

Materiaal aanduiding		Normen	
1.3345	SEL	4957	EN ISO
HS6-5-3C	EN		

Chemische samenstelling

C	Cr	Mo	V	W
1,29	4,2	5	3	6,3

Materiaaleigenschappen

	Drukbelastingcapaciteit	Verwerkbaarheid	Hete hardheid	Taatheid	Slijtvastheid	Behoud van snijkant
BÖHLER S290 MICROCLEAN®	★★★★★	★	★★★★	★★	★★★★★	★★★★
BÖHLER S390 MICROCLEAN®	★★★★	★★★	★★★★	★★★★	★★★★	★★★★
BÖHLER S393 MICROCLEAN®	★★★★	★★★	★★★★	★★★★	★★★★	★★★★
BÖHLER S590 MICROCLEAN®	★★★★	★★★	★★★★	★★★	★★★	★★★
BÖHLER S690 MICROCLEAN®	★★★	★★★	★★	★★★★★	★★★	★★
BÖHLER S793 MICROCLEAN®	★★★	★★★	★★★★	★★★	★★★	★★★

Leveringsconditie

gegloeid

Hardheid (HB)	max. 280 drawn max. 300 HB
Opbrengststerkte (N/mm ²)	max. 1.020

Warmtebehandeling

Annealing

Temperatuur	870 naar 900 °C	870 to 900°C (1598 to 1652°F) The steel needs to be protected against decarburization. Through heating of the material is followed by controlled, slow furnace cooling at a maximum cooling rate of 10°C (50°F) per hour, down to approx. 700°C (1292°F). Final cooling in air.
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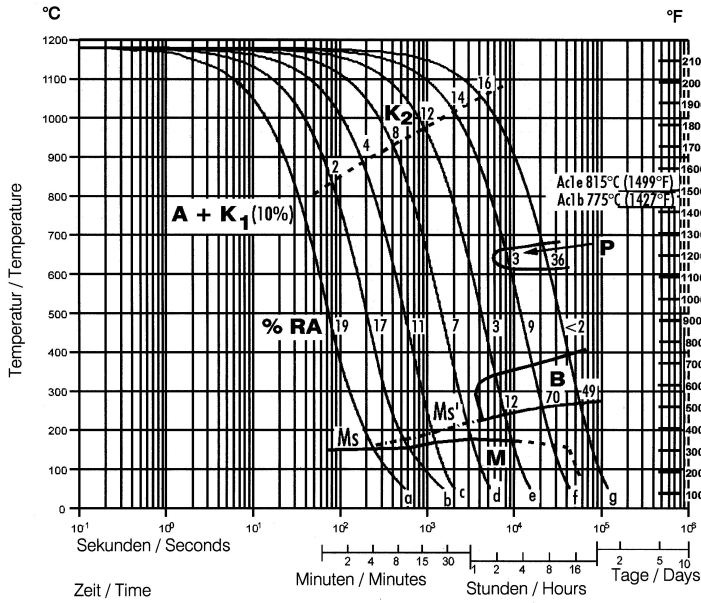
Stress relieving

Temperatuur	600 naar 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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Harden en ontlaten

Temperatuur	1.050 naar 1.200 °C	Salt bath, vacuum Preheating: 1st stage ~ 500 °C, 2nd stage ~ 850 °C, 3rd stage ~1050 °C (for higher austenitising temperature) Austenitising: for cutting applications at higher austenitising temperatures (> 1130 °C), holding time after complete heating 80 seconds, maximum 150 seconds, to avoid material damage due to overtime. Austenitising: for cold work applications at lower austenitising temperatures (< 1100°C). Holding time after complete heating 15 to 30 min Quenching: oil, warm bath (500 - 550 °C), gas.
Temperatuur	560 naar 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

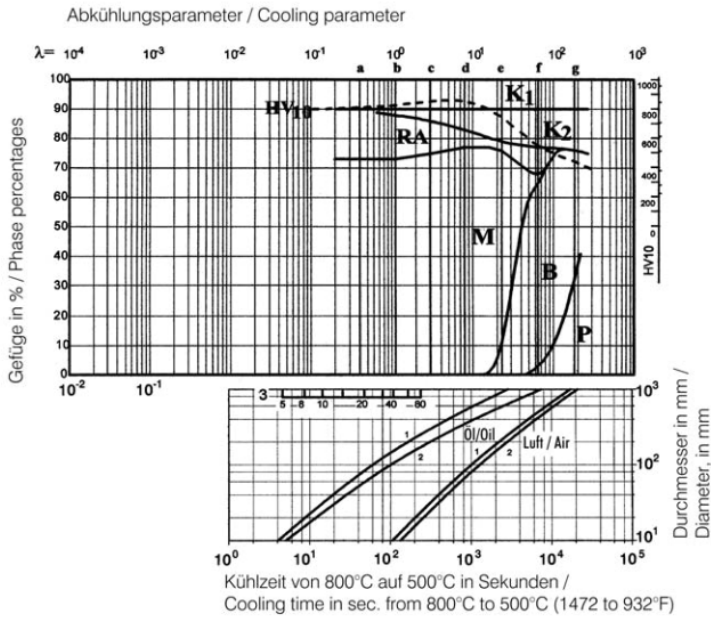
Continuous cooling CCT curves



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

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

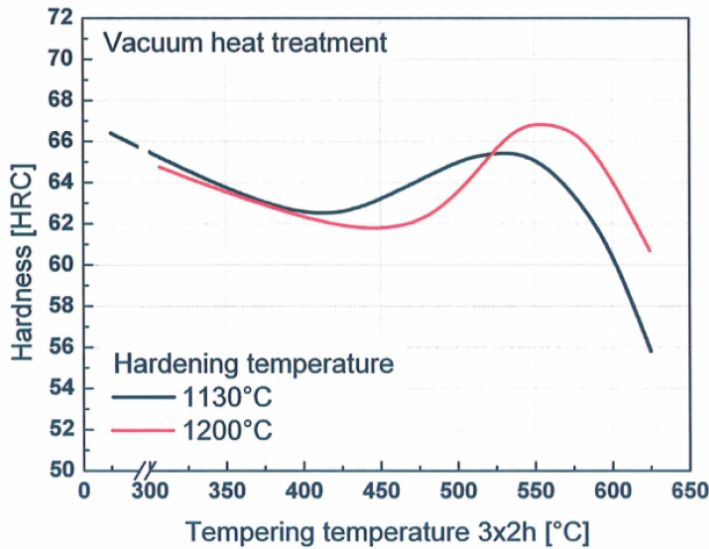
Quantitative phase diagram



- 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



Fysische eigenschappen

Temperatuur (°C)	20
Soortelijk gewicht (kg/dm ³)	8
Thermische conductiviteit (W/(m.K))	24
Soortelijke warmte (kJ/kg K)	0,42
Specifieke elektrische weerstand (Ohm.mm ² /m)	0,54
Elasticiteitsmodus (10 ³ N/mm ²)	230

Thermische expansie

Temperatuur (°C)	100	200	300	400	500	600	700
Thermische expansie (10 ⁻⁶ m/(m.K))	11,5	11,7	12,2	12,4	12,7	13	12,9

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.