

ACCIAI RAPIDI

Granulometria disponibile

 Prodotti lunghi*

 Lamiere

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

Descrizione del prodotto

Acciaio rapido ottenuto mediante procedimento di metallurgia delle polveri con buona durezza a caldo, resistenza alla compressione e all'usura. La tecnologia della metallurgia delle polveri conferisce al materiale una buona tenacità, un'eccezionale lavorabilità e rettificabilità.

Percorso di fusione

 Powder metallurgy

Proprietà

- > Durezza e duttilità : alto
- > Resistenza all'usura : buono
- > Resistenza alla compressione : alto
- > Stabilità dei bordi : alto
- > Macinabilità : alto
- > Durezza a caldo (durezza rossa) : alto

Applicazioni

- > Lame industriali speciali
- > Tranciatura / Tranciatura fine / Stampaggio
- > Laminazione a freddo
- > Brocche e alesatori
- > Utensili per lavorazioni di sgrossatura e sagomatura
- > Lame industriali / Cesioie
- > Frese a codolo
- > Pressatura delle polveri
- > Punte speciali elicoidali

Dati tecnici

Corrispondenze		Standard	
1.3244	SEL	4957	EN ISO
HS6-5-3-8	EN		

Analisi chimica

C	Cr	Mo	V	W	Co
1,29	4,2	5	3	6,3	8,4

Proprietà del materiale

	Resistenza alla compressione	Macinabilità	Durezza a caldo	Tenacità	Resistenza all'usura	Resistenza al taglio
BÖHLER S590 MICROCLEAN®	★★★★	★★★	★★★★	★★★	★★★	★★★
BÖHLER S290 MICROCLEAN®	★★★★★	★	★★★★	★★	★★★★★	★★★★★
BÖHLER S390 MICROCLEAN®	★★★★	★★★	★★★★	★★★★	★★★★	★★★★
BÖHLER S393 MICROCLEAN®	★★★★	★★★	★★★★	★★★★	★★★★	★★★★
BÖHLER S690 MICROCLEAN®	★★★	★★★	★★	★★★★★	★★★	★★
BÖHLER S790 MICROCLEAN®	★★★	★★★	★★	★★★★	★★	★★★
BÖHLER S793 MICROCLEAN®	★★★	★★★	★★★★	★★★	★★★	★★★

Condizioni di consegna
Ricotto

Durezza (HB)	max. 300
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Trattamento termico
Annealing

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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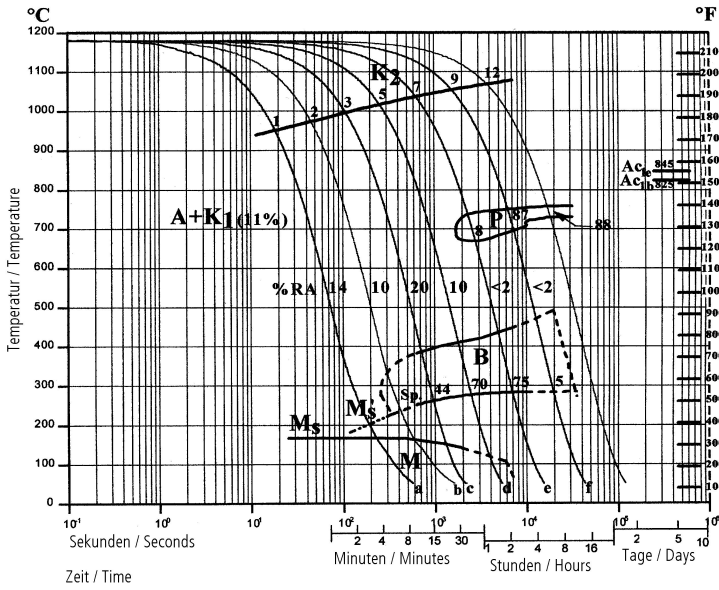
Alleviare lo stress

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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Tempra e rinvenimento

Temperatura	1.075 a 1.180 °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 (> 1100 °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.
Temperatura	540 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

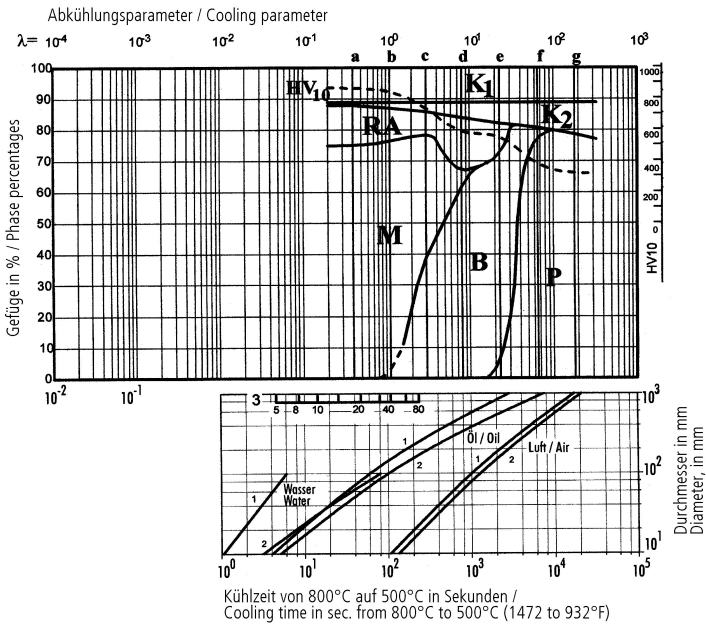
Continuous cooling CCT curves



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

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

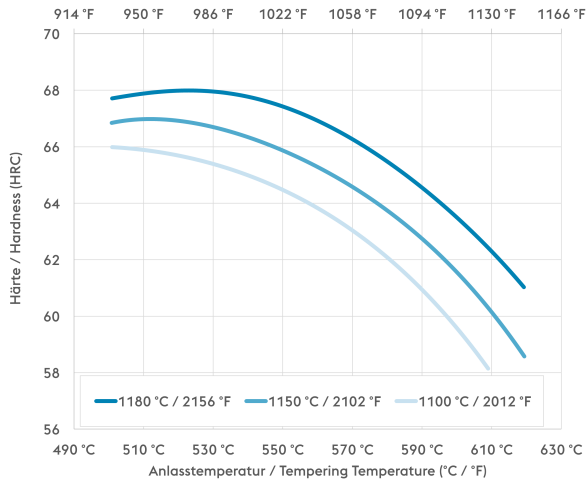
Quantitative phase diagram



- 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

Proprietà fisiche

Temperatura (°C)	20
Densità (kg/dm ³)	8,05
Conducibilità termica (W/(m.K))	22
Capacità termica specifica (kJ/kg K)	0,42
Resistenza elettrica specifica (Ohm.mm ² /m)	0,61
Modulo di elasticità (10 ³ N/mm ²)	240

Espansioni termiche

Temperatura (°C)	100	200	300	400	500	600	700
Espansione termica (10 ⁻⁶ m/(m.K))	10	10,5	10,8	11,2	11,3	11,4	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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voestalpine

ONE STEP AHEAD.