

ACCIAI DA UTENSILE PER LAVORAZIONE A CALDO

Granulometria disponibile

Prodotti lunghi

Descrizione del prodotto

Acciaio per lavorazione a caldo con ottime proprietà di resistenza al calore, elevata proprietà di rinvenimento e migliore tenacità, nonché buona resistenza alle cricche termiche, raffreddabile in acqua.

Percorso di fusione

Airmelted

Proprietà

- > Durezza e duttilità : buono
- > Resistenza all'usura : alto
- > Lavorabilità : molto alto
- > Durezza a caldo (durezza rossa) : alto
- > Lucidabilità : buono
- > Micropulizia : buono
- > Conducibilità termica : molto alto

Applicazioni

- > Estrusione
- > Pressocolata ad alta pressione
- > Forgiatura a caldo
- > Forgiatura progressiva (Hatebur)
- > Colata in gravità

Dati tecnici

Corrispondenze		Standard	
1.2365	SEL	4957	EN ISO
~T20810	UNS	G4404	JIS
32CrMoV12-28	EN		
~H10	AISI		
SKD7	JIS		

Analisi chimica

C	Si	Mn	Cr	Mo	V
0,31	0,30	0,35	2,90	2,70	0,50

Proprietà del materiale

	Resistenza a caldo	Durezza a caldo	Resistenza all'usura a caldo
	★★★	★★	★★★
	★★	★★★	★★
	★★	★★★★★	★★
	★★★	★★★	★★★
	★★★	★★★★★	★★★
	★★★★★	★★★	★★★★★
	★★★	★★★★★★	★★★
	★★★★★★	★★★★★	★★★★★★
	★★	★★★★★★	★★
	★★★★★	★★★★★	★★★★★

Condizioni di consegna

Ricotto

Durezza (HB)	max. 229
--------------	----------

Trattamento termico

Annealing

Temperatura	750 a 800 °C	Holding time 6 to 8 hours. Slow, controlled furnace cooling at 10 to 20°C/h (50 to 68 °F/hr) to approx. 600°C (1112°F), further cooling in air.
-------------	--------------	---

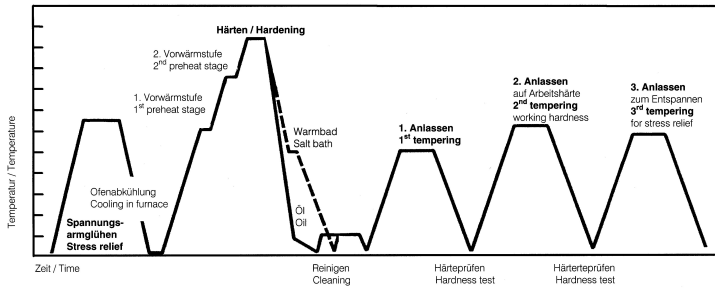
Alleviare lo stress

Temperatura	600 a 670 °C	For stress relief after extensive machining or for complicated tools. Holding time depending on tool size after complete heating 2 - 6 hours in neutral atmosphere. Slow furnace cooling.
-------------	--------------	---

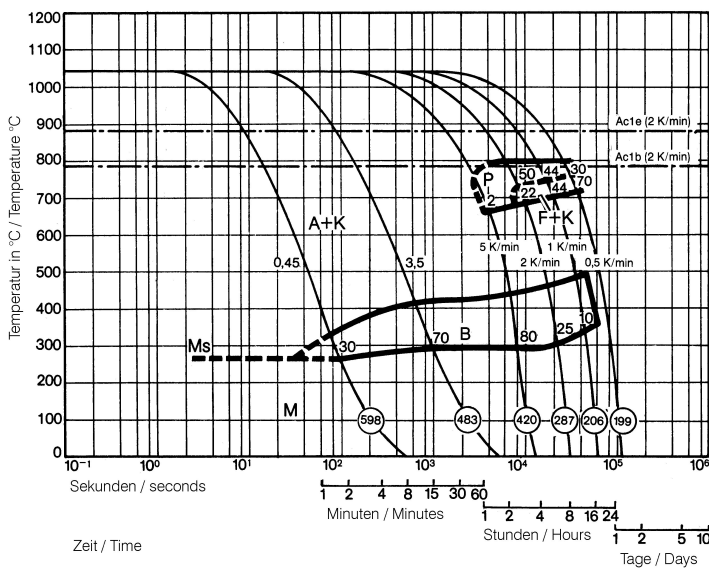
Tempra e rinvenimento

Temperatura	1.010 a 1.050 °C	Holding time after temperature equalization: 15 to 30 minutes; Quenching: Oil, salt bath (500 - 550°C [932-1022°F]), air, vacuum; After hardening, tempering to the desired working hardness (see tempering chart).
-------------	------------------	---

Heat treatment sequence



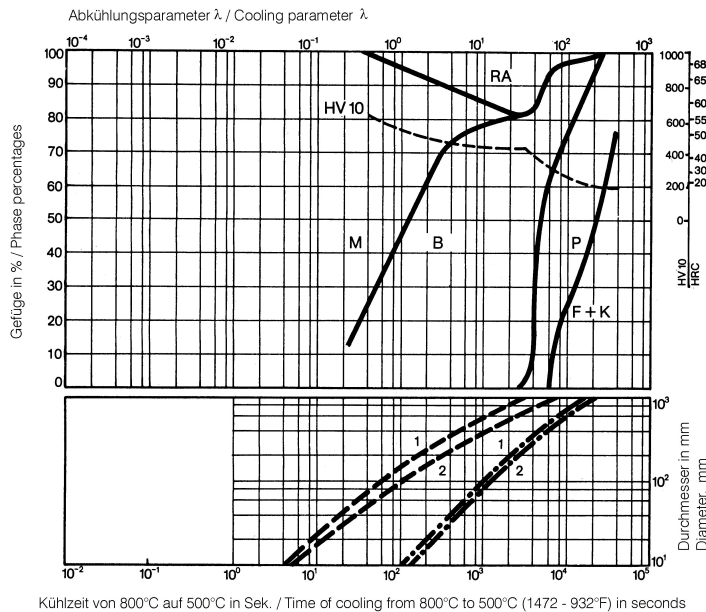
Continuous cooling CCT curves



Austenitising temperature: 1886°F (1030°C)
Holding time: 15 minutes

O Vickers hardness
2...80 phase percentages
0.45...3.5 cooling parameter, i.e. duration of cooling from 1472-932°F (800 - 500°C) in $s \times 10^{-2}$
41...32.9°F/min (5...0.5 K/min) cooling rate in °F/min (K/min) in the 1472-932°F (800 - 500°C) range

Quantitative phase diagram

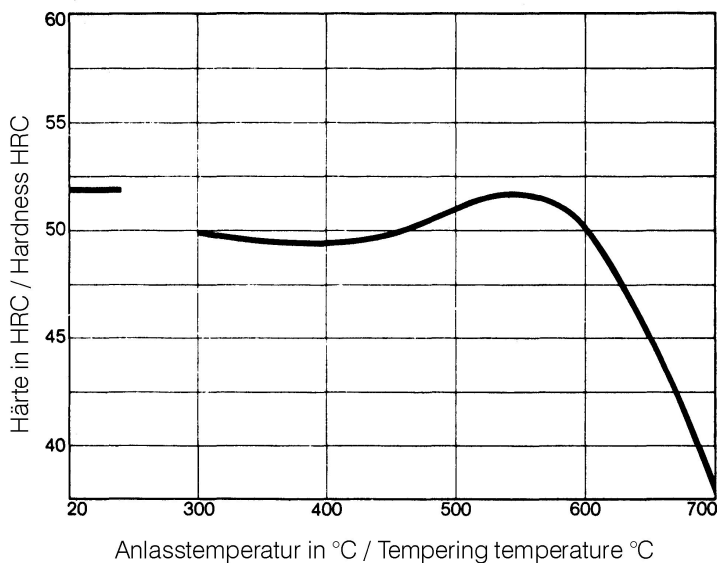


A... Austenite
B... Bainite
F... Ferrite
K... Carbide
M... Martensite
P... Perlite
RA... Retained austenite

----- Oil cooling
- · - Air cooling

1... Edge or face
2... Core

Tempering chart



Tempering:

Slow heating to tempering temperature immediately after hardening / time in furnace 1 hour for each 0,787 inch (20 mm) of work piece thickness but at least 2 hours / cooling in air. It is recommended to temper at least twice. A third tempering cycle for the purpose of stress relieving may be advantageous.

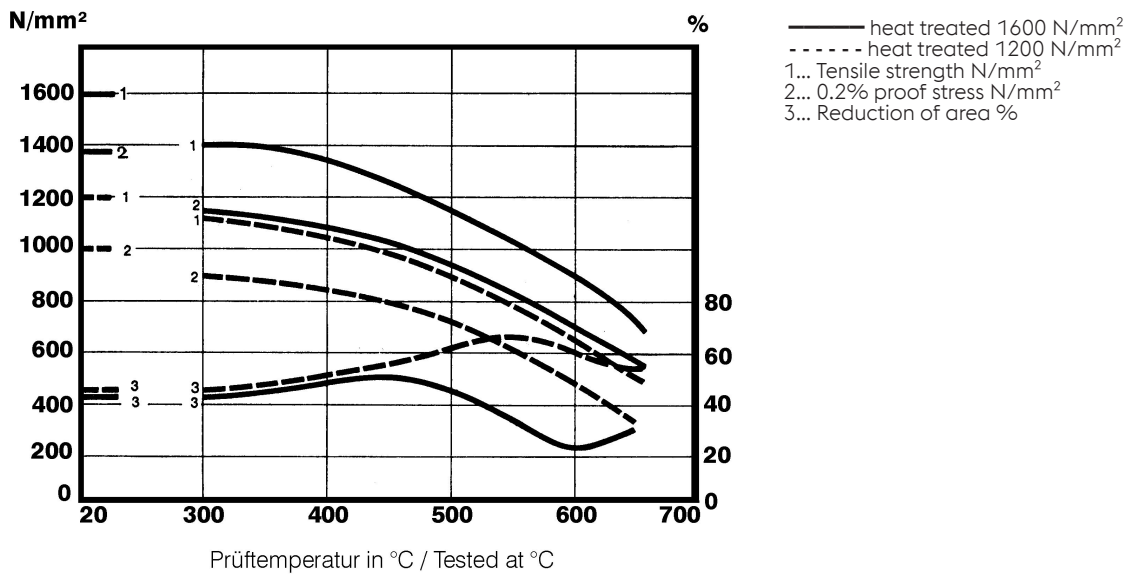
1st tempering approx. 30°C (86°F) above maximum secondary hardness.

2nd tempering to desired working hardness.

The tempering chart shows average tempered hardness values.

3rd for stress relieving at a temperature 86 to 122°F (30 - 50°C) below highest tempering temperature.

Hot strength chart



Proprietà fisiche

Temperatura (°C)	20
Densità (kg/dm ³)	7,85
Conducibilità termica (W/(m.K))	30
Capacità termica specifica (kJ/kg K)	0,46
Resistenza elettrica specifica (Ohm.mm ² /m)	0,37
Modulo di elasticità (10 ³ N/mm ²)	215

Espansioni termiche

Temperatura (°C)	100	200	300	400	500	600	700
Espansione termica (10 ⁻⁶ m/(m.K))	12	12,5	12,7	13	13,2	13,4	13,7

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@boehler-edelstahl.at
<https://www.voestalpine.com/boehler-edelstahl/de/>

voestalpine

ONE STEP AHEAD.