

Steel grade

Material No. / Werkstoff-Nr.	PREMIUM 1.2842 / 1.2510
Description	90MnCrV8 / 100MnCrW4
AISI/SAE	O2 / O1; T31502 / T31501
Search for alternatives in the ABRAMS STEEL GUIDE [®]	www.steel-guide.eu/alternatives/O2

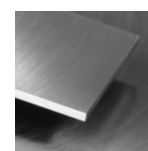
Specifications



Precision flat steel without machining allowance, DIN 59350 [PFS]
L: 500 mm
L: 1.000 mm



Precision flat steel with machining allowance [PFS/BA]
L: 500 mm
L: 1.000 mm



Hart-Präz[®] [Hart]
L: 250 mm
L: 500 mm



Precision round steel without machining allowance [PRS] bright ground, ISO h8
L: 1.000 mm



Precision round steel with machining allowance [PRS/BA] geschält / überdreht
L: 500 mm
L: 1.000 mm

Chemical composition AISI/SAE O2 (reference value %)

C	Si	Mn	P	S	Cr	V
0,85 - 0,95	0,1 - 0,4	1,8 - 2,2	0 - 0,03	0 - 0,03	0,2 - 0,5	0,05 - 0,2

Physical properties

Hardness (delivery condition)	max. 229 HB, annealed						
Tensile strength R_m (as received condition)	approx. 770 N/mm ²						
Working hardness	max. 62 HRC						
Thermal expansion coefficient $10^{-6}m/(m \cdot K)$	20 - 100°C	20 - 200°C	20 - 300°C	20 - 400°C	20 - 500°C	20 - 600°C	20 - 700°C
	12,2	13,2	13,8	14,3	14,7	15,0	15,3
Thermal conductivity $W/(m \cdot K)$	20°C	350°C	700°C				
	33,0	32,0	31,3				

Technical properties

Alloyed oil hardener with focus on cold work; can be used for a wide range of applications: full hardenability, high degree of dimensional stability, good cutting power and good toughness. Its technical properties and its applications are similar to those of AISI/SAE O1.

Applications

Blanking tools and stamping tools (up to 6 mm thickness), shear knives, threading tools, threading dies, reamers, chasers, measuring tools, plastic moulds, rubber moulds, calibres, guide rails, dies, punches, woodworking tools, machine knives.

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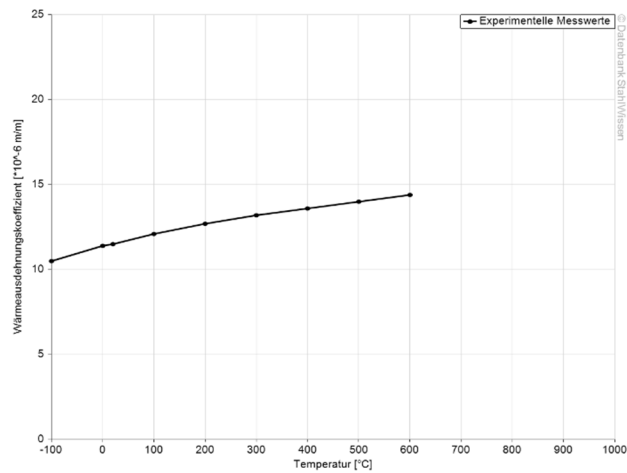


Heat treatment

	Temperature	Cooling		Hardness		
Soft annealing	680 - 720°C	Furnace		max. 229 HB		
Stress relief annealing	Temperature	Cooling				
	approx. 650°C	Furnace				
Hardening	Temperature	Quenching in		Hardness after quenching		
	790 - 820°C	Oil, hot basin (180 - 220°C)		64 HRC		
Tempering	100°C	200°C	300°C	400°C	500°C	600°C
	63 HRC	60 HRC	56 HRC	50 HRC	42 HRC	38 HRC

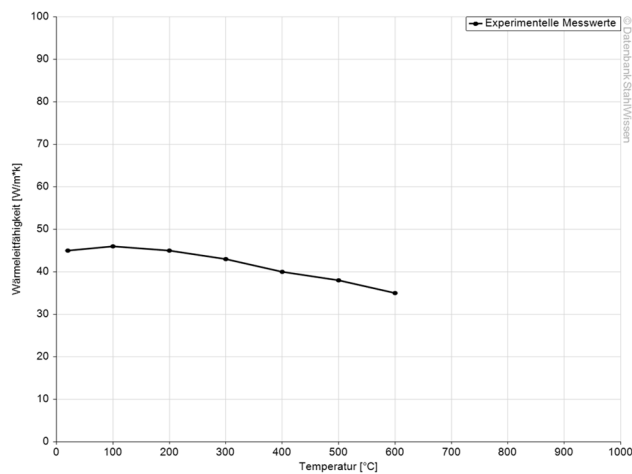
Thermal expansion coefficient diagram

Werkstoff: 90MnCrV8, 1.2842



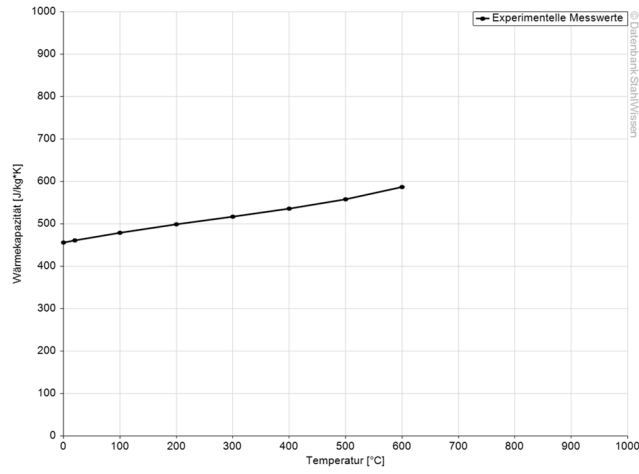
Thermal conductivity diagram

Werkstoff: 90MnCrV8, 1.2842



Thermal capacity diagram

Werkstoff: 90MnCrV8, 1.2842

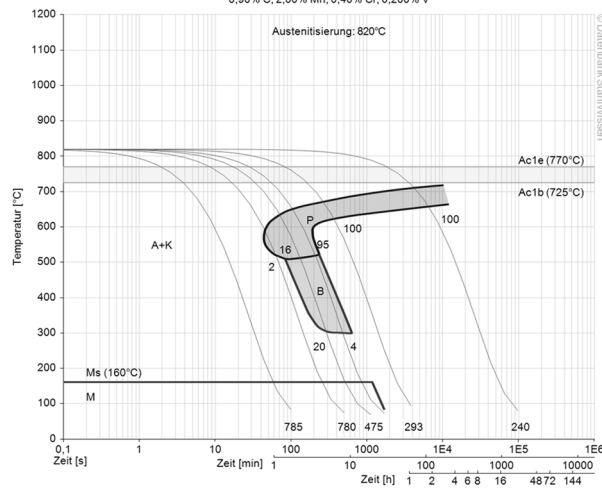


Continuous ZTU-diagram

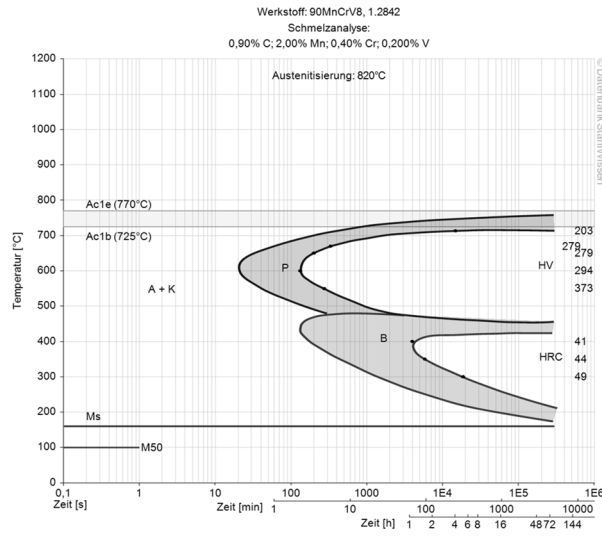
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Schmelzanalyse:
0,90% C; 2,00% Mn; 0,40% Cr; 0,200% V

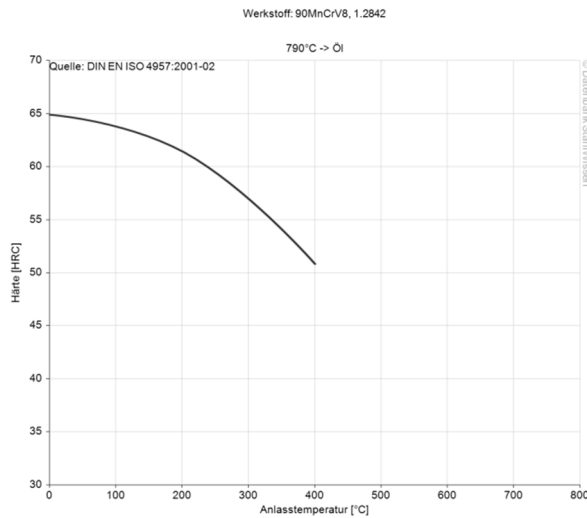
Austenilisierung: 820°C



Isothermal ZTU-diagram



Tempering diagram



The data shown here is to be used only as an indication of the statistics, thus we accept no liability.
 Diagrams are taken from Datenbank StahlWissen Dr. Sommer Werkstofftechnik
 Issued: 2012

