

Steel grade

Material No. / Werkstoff-Nr.	PREMIUM 1.7227
Description	42CrMoS4
AISI/SAE	4140
Search for alternatives in the ABRAMS STEEL GUIDE®	www.steel-guide.eu/alternatives/1.7227

Specifications



€co-Präz* [€co]
L: 500 mm

Chemical composition AISI/SAE 4140 (reference value %)

C	Si	Mn	P	S	Cr	Mo
0,38 - 0,45	0 - 0,4	0,6 - 0,9	0 - 0,035	0,02 - 0,04	0,9 - 1,2	0,15 - 0,3

Physical properties

Hardness (delivery condition)	max. 217 HB, annealed / normalized			
Tensile strength R _m (as received condition)	approx. 720 N/mm ²			
Working hardness	max. 48 HRC			
Thermal expansion coefficient 10 ⁻⁶ m/(m • K)	20 - 100°C	20 - 200°C	20 - 300°C	20 - 400°C
	11,1	12,1	12,9	13,5
Thermal conductivity W/(m • K)	20°C			
	42,6			

Technical properties

Versatile heat-treatable steel (annealed condition) with high strength and high toughness, that is often used for demanding applications in automotive engineering. Better machinability due to the addition of sulphur, very low distortion.

Applications

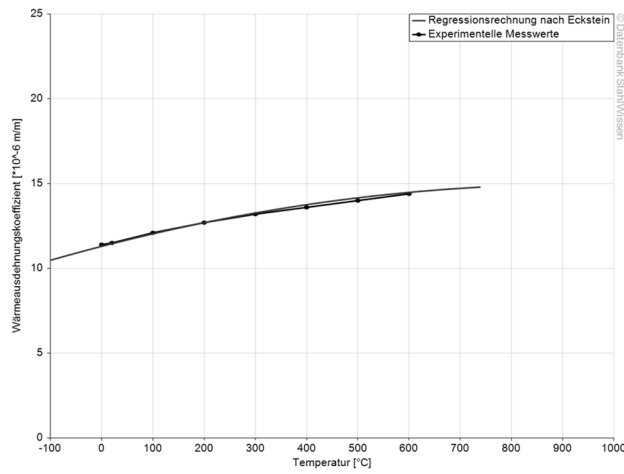
Mechanical engineering, machine components, axes, knuckles, connecting rods, crankshafts, gear shafts, pinions, gears, bandages, base plates, assembling parts.

Heat treatment

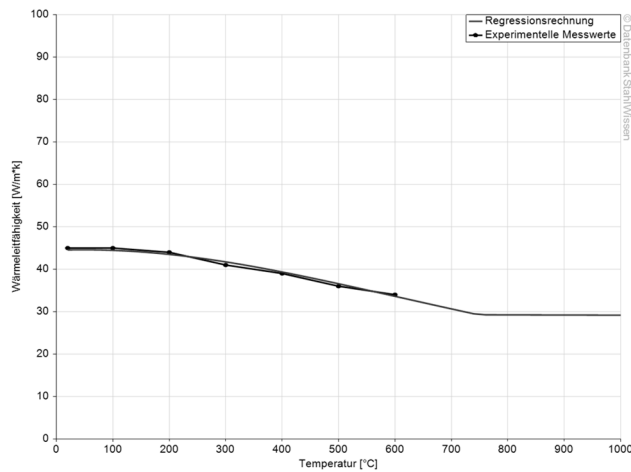
Soft annealing	Temperature	Cooling	Hardness
	680 - 720°C	Furnace	max. 217 HB
Hardening	Temperature	Quenching in	
	830 - 880°C	Oil or water	



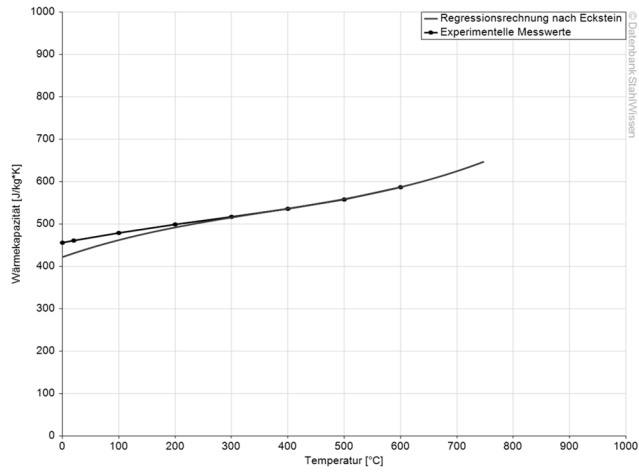
Thermal expansion coefficient diagram



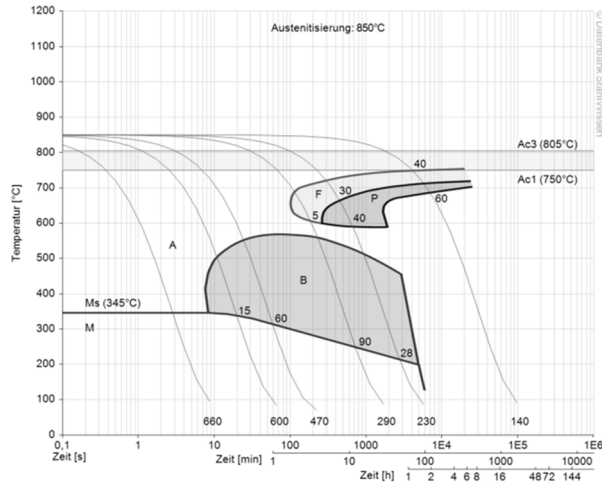
Thermal conductivity diagram



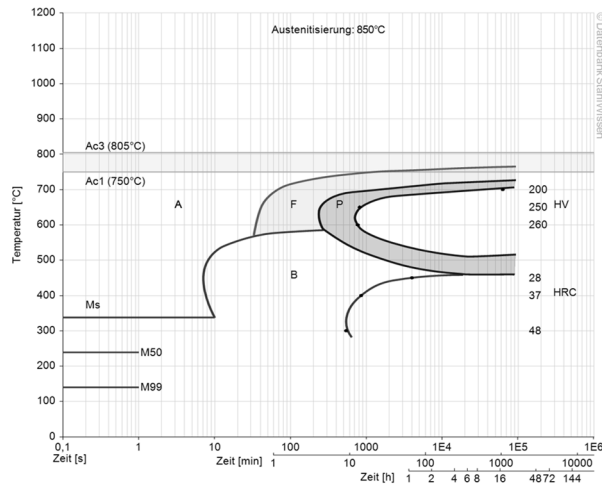
Thermal capacity diagram



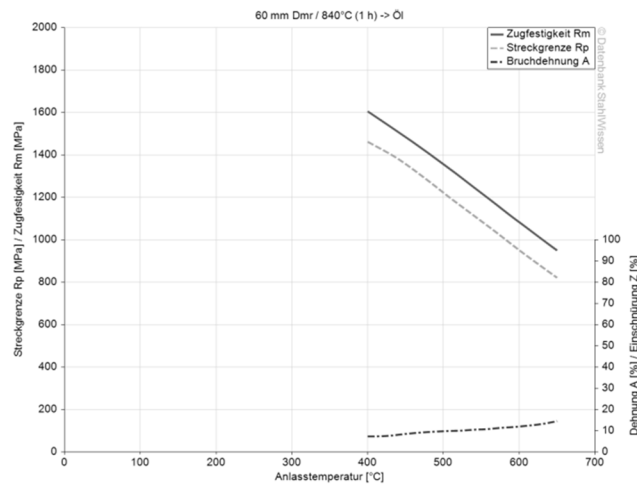
Continuous ZTU-diagram



Isothermal ZTU-diagram



Hardening and tempering diagram



Die hier angegebenen Daten dienen als Anhaltswerte. Eine Haftung ist ausgeschlossen.
Quelle der Grafiken: Datenbank StahlWissen Dr. Sommer Werkstofftechnik
Stand: 2012

