

## Steel grade

Material No. / Werkstoff-Nr.	PREMIUM 1.7225
Description	42CrMo4
AISI/SAE	4140
Search for alternatives in the ABRAMS STEEL GUIDE <sup>®</sup>	<a href="http://www.steel-guide.eu/alternatives/4140">www.steel-guide.eu/alternatives/4140</a>

## Specifications



### €co-Präz\* [€co]

L: 500 mm  
L: 1.000 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 - 0,035	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 <sup>2</sup>					
Working hardness	max. 48 HRC					
Thermal expansion coefficient $10^{-6}m/(m \cdot K)$	20 - 100°C	20 - 200°C	20 - 300°C	20 - 400°C		
	11,1	12,1	12,9	13,5		
Thermal conductivity $W/(m \cdot K)$	20°C					
	42,6					

## Technical properties

Heat-treatable steel (annealed condition) that can be used for a wide range of applications with a high degree of strength and toughness. Often used for demanding applications in automotive engineering. In quenched and tempered condition it is used in machine construction.

## Applications

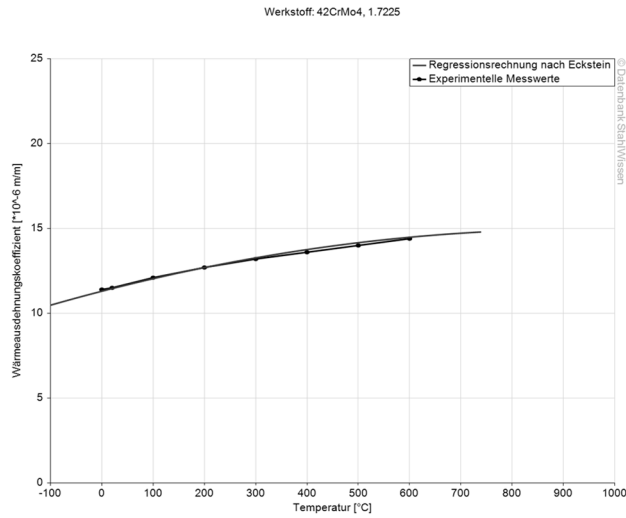
Mechanical engineering, machine parts, axes, knuckles, connecting rods, crankshafts, gear shafts, pinions, gears, bandages, base plates, assembling parts.

## Heat treatment

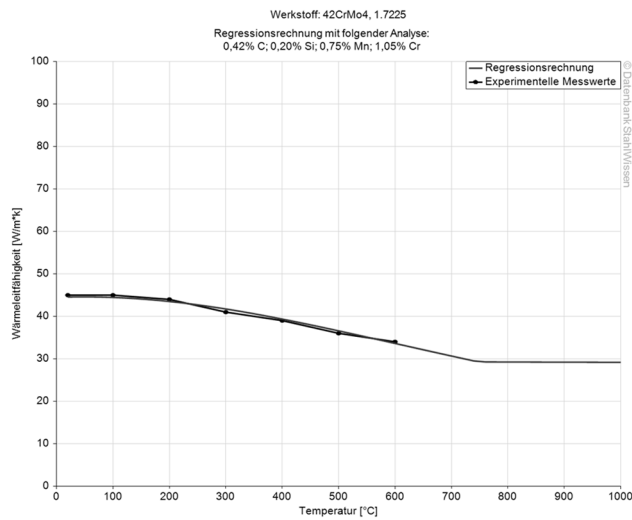
	Temperature	Cooling	Hardness
Soft annealing	680 - 720°C	Furnace	max. 217 HB
	Temperature	Quenching in	
Hardening	830 - 880°C	Oil or water	



## Thermal expansion coefficient diagram

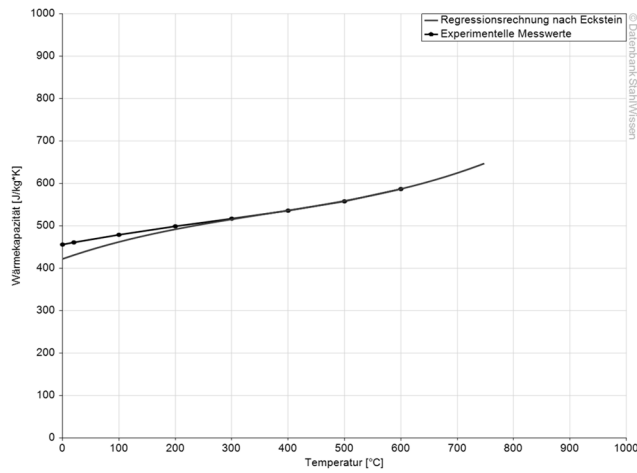


## Thermal conductivity diagram



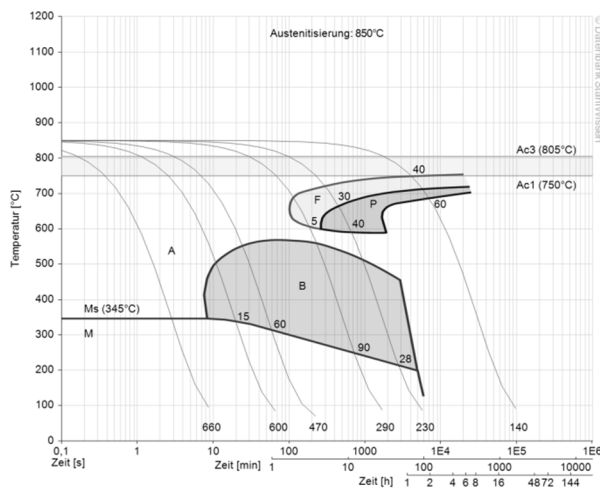
## Thermal capacity diagram

Werkstoff: 42CrMo4, 1.7225

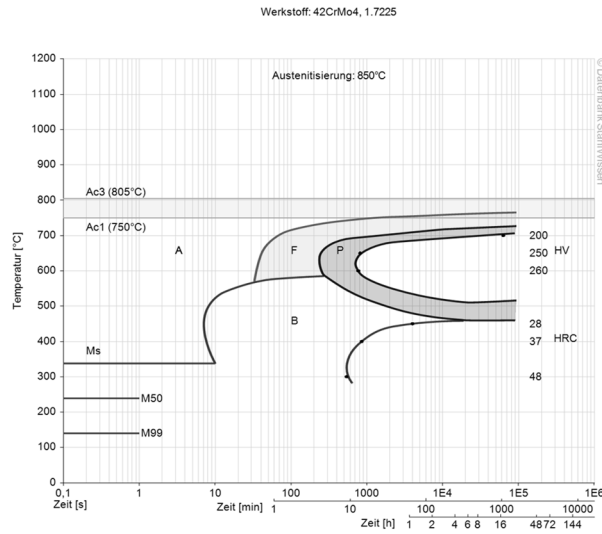


## Continuous ZTU-diagram

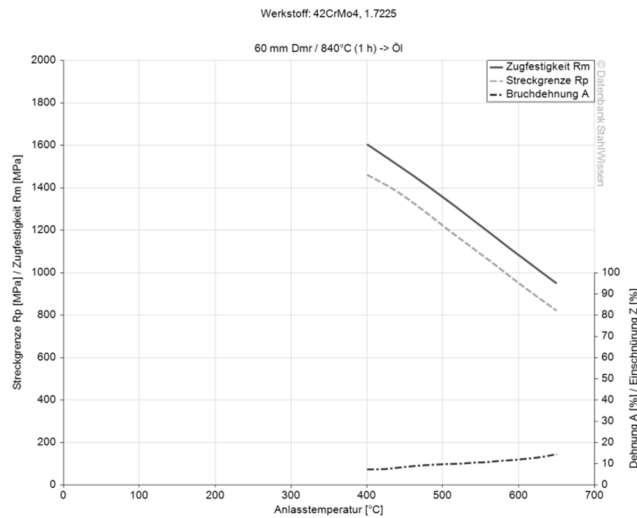
Werkstoff: 42CrMo4, 1.7225



## Isothermal ZTU-diagram



## Hardening and 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  
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