

## Steel grade

Material No. / Werkstoff-Nr.	PREMIUM 1.7225
Description	42CrMo4
BS	708 M 40
AISI/SAE	4140
Search for alternatives in the ABRAMS STEEL GUIDE®	<a href="http://www.steel-guide.co.uk/alternatives/708M40">www.steel-guide.co.uk/alternatives/708M40</a>

## Specifications



€co-Präz® [€co]  
L: 500 mm  
L: 1,000 mm

## Chemical composition BS 708 M 40 (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

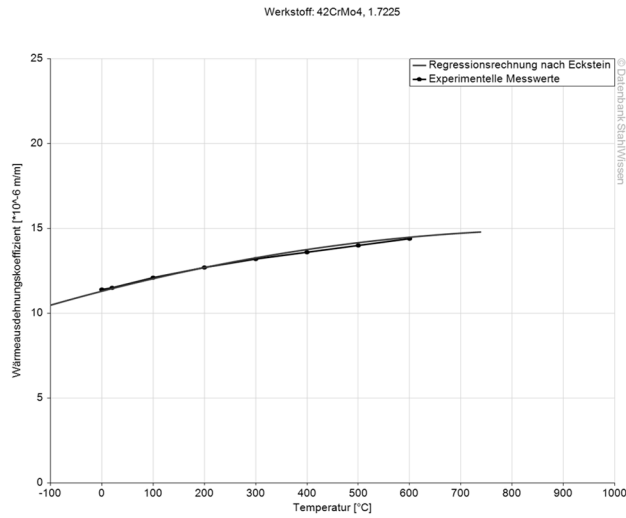
Mechanical engineering, machine parts, axes, knuckles, connecting rods, crankshafts, gear shafts, pinions, gears, bandages, base plates, assembling parts.

## Heat treatment

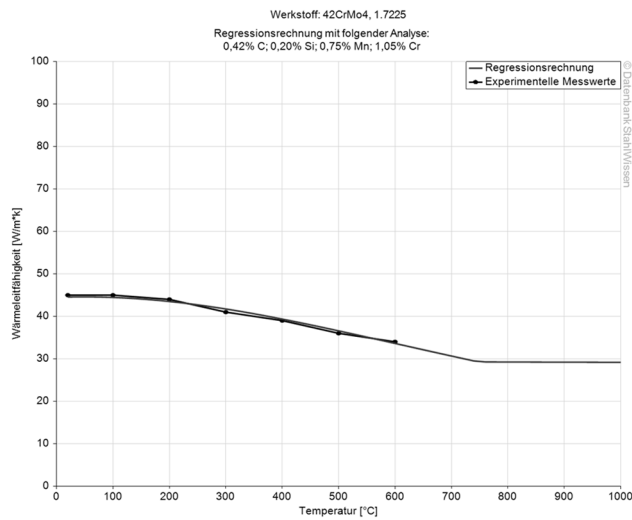
Soft annealing	Temperature	Cooling	Hardness
	680 - 720°C	Furnace	max. 217 HB
Hardening	Temperature	Quenching in	
	830 - 880°C	Oil or water	



## Thermal expansion coefficient diagram

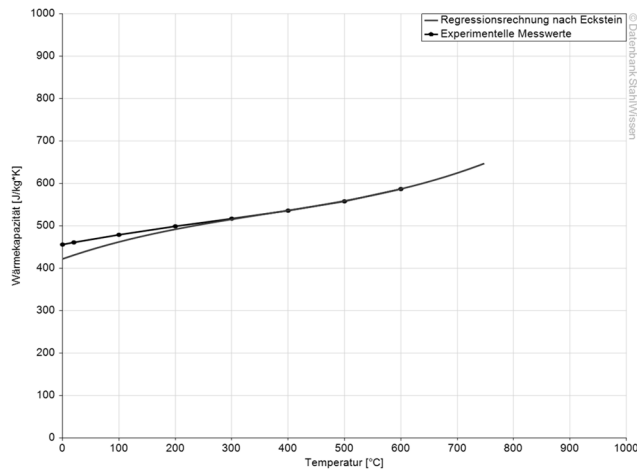


## Thermal conductivity diagram



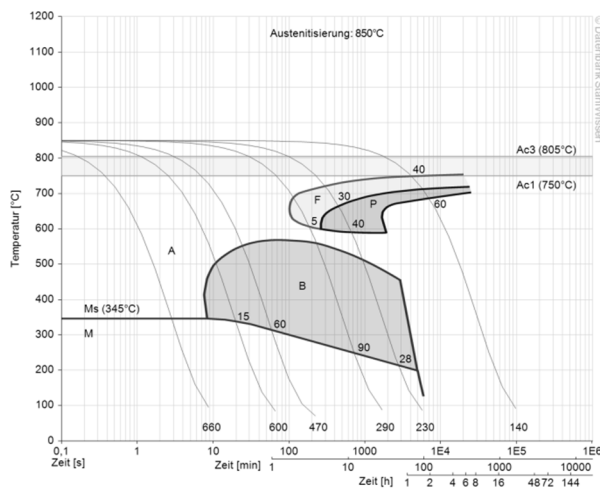
## Thermal capacity diagram

Werkstoff: 42CrMo4, 1.7225

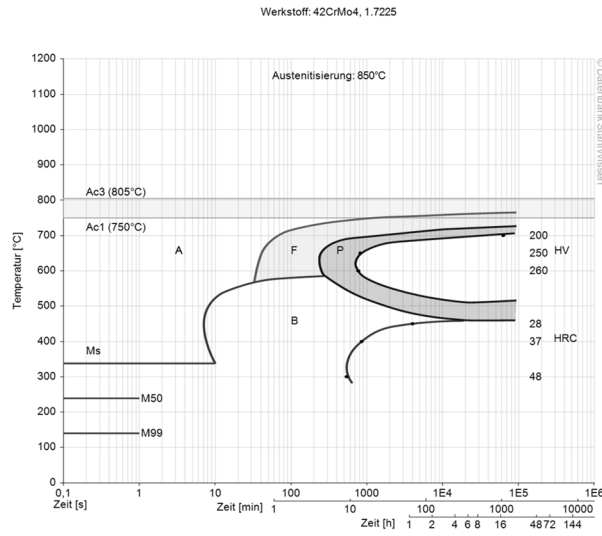


## Continuous ZTU-diagram

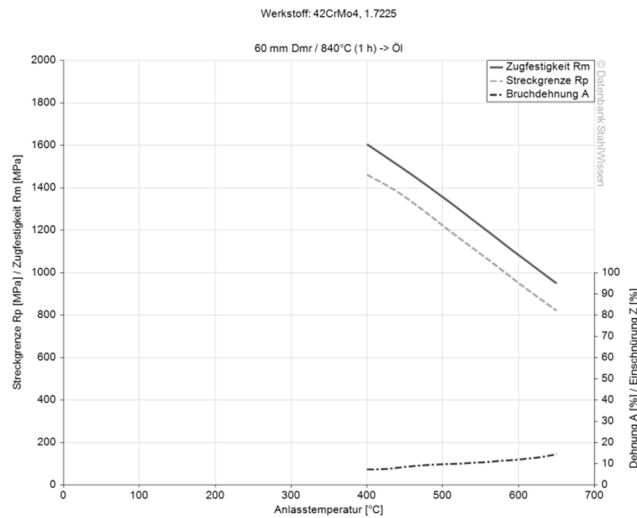
Werkstoff: 42CrMo4, 1.7225



## 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  
Issued: 2012

