

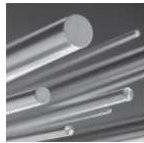
Steel grade

Material No. / Werkstoff-Nr.	PREMIUM 1.2738
Description	40CrMnNiMo8-6-4
BS	1.2738
AISI/SAE	P20+Ni
Search for alternatives in the ABRAMS STEEL GUIDE®	www.steel-guide.co.uk/alternatives/1.2738

Specifications



€co-Präz® [€co]
L: 500 mm



Precision round steel
with machining allowance [PRS/BA]
peeled / rough-turned
L: 500 mm
L: 1,000 mm

Chemical composition BS 1.2738 (reference value %)

C	Si	Mn	P	S	Cr	Mo	Ni
0.35 – 0.45	0.2 – 0.4	1.3 – 1.6	0 – 0.03	0 – 0.03	1.8 – 2.1	0.15 – 0.25	0.9 – 1.2

Physical properties

Hardness (delivery condition)	max. 325 HB, tempered						
Tensile strength R_m (as received condition)	approx. 1100 N/mm ²						
Working hardness	max. 50 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
	11.1	12.9	13.4	13.8	14.2	14.6	14.9
Thermal conductivity $W/(m \cdot K)$	20°C	350°C	700°C				
	34.5	33.5	32.0				

Technical properties

Steel grade with focus on plastic mould making; nickel additives for a better through-hardening (constant strength), also for thicknesses > 400 mm. Low sulphur steel and therefore polishable and grainable.

Applications

Plastic moulds, moulding frames, die casting moulds, dies, forging tools, metal extrusion tools, tube presses, hydroforming tools.

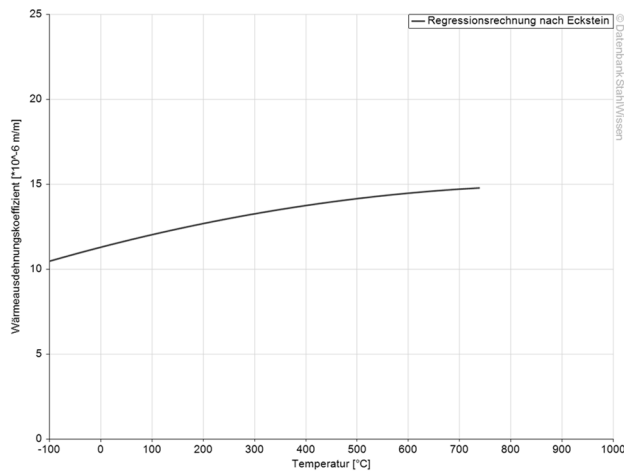


Heat treatment

	Temperature	Cooling	Hardness				
Soft annealing	710 - 740°C	Furnace	max. 325 HB				
Stress relief annealing	550 - 600°C	Furnace					
	Temperature	Quenching in	Hardness after quenching				
Hardening	840 - 870°C	Polymer, oil	51 HRC				
	100°C	200°C	300°C	400°C	500°C	600°C	700°C
Tempering	51 HRC	50 HRC	48 HRC	46 HRC	42 HRC	39 HRC	28 HRC

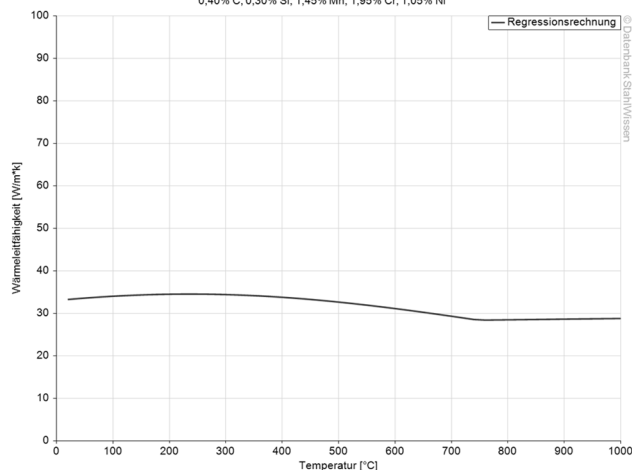
Thermal expansion coefficient diagram

Werkstoff: 40CrMnNiMo8-6-4, 1.2738



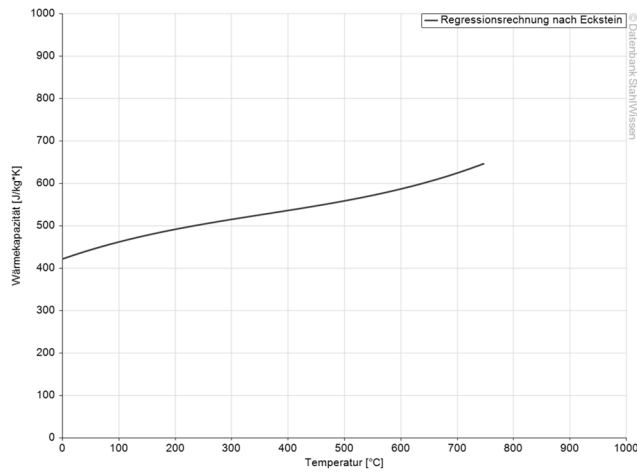
Thermal conductivity diagram

Werkstoff: 40CrMnNiMo8-6-4, 1.2738
Regressionsrechnung mit folgender Analyse:
0,40% C; 0,30% Si; 1,45% Mn; 1,95% Cr; 1,05% Ni



Thermal capacity diagram

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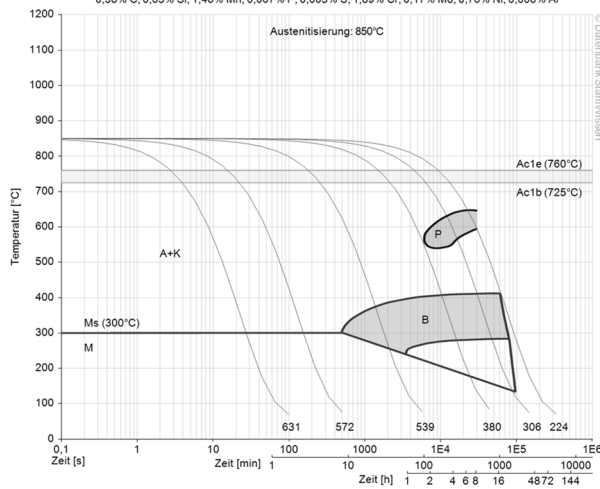
Continuous ZTU-diagram

Werkstoff: 40CrMnNiMo8-6-4, 1.2738

Schmelzanalyse:

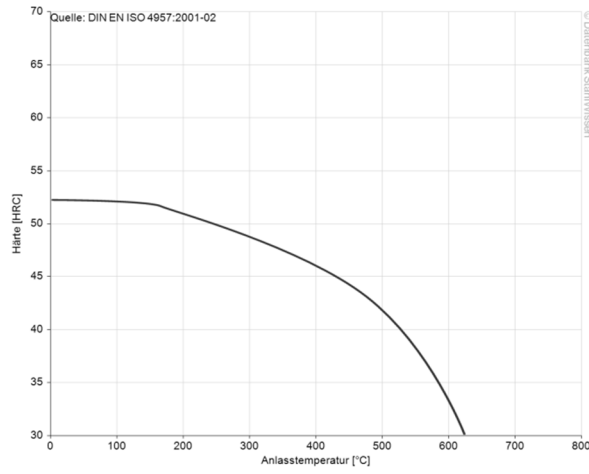
0,38% C; 0,05% Si; 1,46% Mn; 0,007% P; 0,003% S; 1,89% Cr; 0,17% Mo; 0,76% Ni; 0,006% Al

Austenilisierung: 850°C



Tempering diagram

Werkstoff: 40CrMnNiMo8-6-4, 1.2738



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

