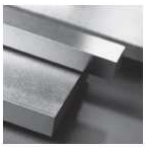
ABRAMS INDUSTRIES®

Steel grade

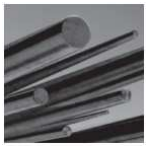
Material No. / Werkstoff-Nr.	PREMIUM 1.7131
Description	16MnCr5, EC 80
AISI/SAE	5115
Search for alternatives in the ABRAMS STEEL GUIDE®	**www.steel-guide.eu/alternatives/5115**

Specifications



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

€co-Präz® [€co]
L: 500 mm



Round steel [RS]
black
L: 500 mm
L: 1.000 mm

Chemical composition AISI/SAE 5115 (reference value %)

C	Si	Mn	P	S	Cr
0,14 - 0,19	0 - 0,4	1,0 - 1,3	0 - 0,025	0 - 0,035	0,8 - 1,1

Physical properties

Hardness (delivery condition)	max. 217 HB, annealed			
Tensile strength R_m (as received condition)	approx. 720 N/mm²			
Working hardness	max. 60 HRC (surface hardness)			
Thermal expansion coefficient 10^{-6}m/(m • K)	20 - 100°C	20 - 200°C	20 - 300°C	20 - 400°C
	11,5	12,5	13,3	13,9
Thermal conductivity W/(m • K)	20°C			
	44,0			

Technical properties

Cold work and plastic mould steel (group of case hardening steel) with the objective of high surface hardness with core toughness. Excellent machinability, good cold hobbing and polishing properties. The tensile strength is a result of the combination of hardened surface and tough core.

Applications

Mechanical engineering, jig construction, plant engineering, apparatus engineering, plastic processing, plastic moulds, synthetic resin moulds, base plates, bending bars, guide columns, gear parts, joint parts, shafts, gears, rods, bevel gears, crown wheels, piston pins, camshafts, bolts, pins, cardan joints.

Heat treatment

Soft annealing	**Temperature**	**Cooling**	**Hardness**
	650 - 700°C	Furnace	max. 217 HB
Hardening	**Temperature**	**Quenching in**	
Core hardening	860 - 900°C	Oil, hot basin (160 - 250°C)	
Surface hardening	780 - 820°C	Oil, hot basin (160 - 250°C)	
Tempering	**Temperature**	**Cooling**	
	150 - 200°C	Air	

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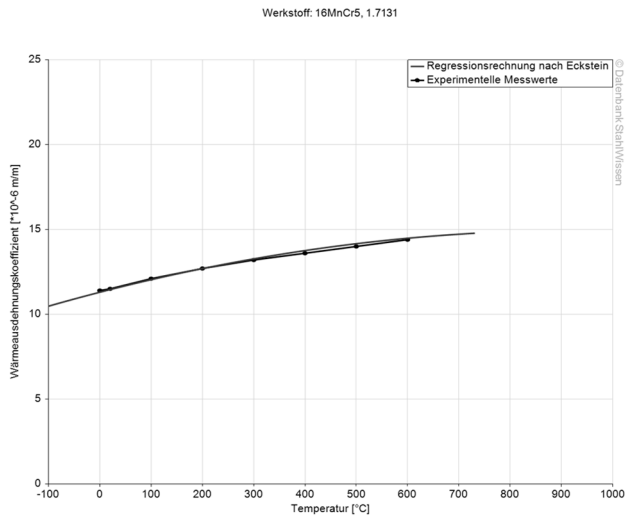
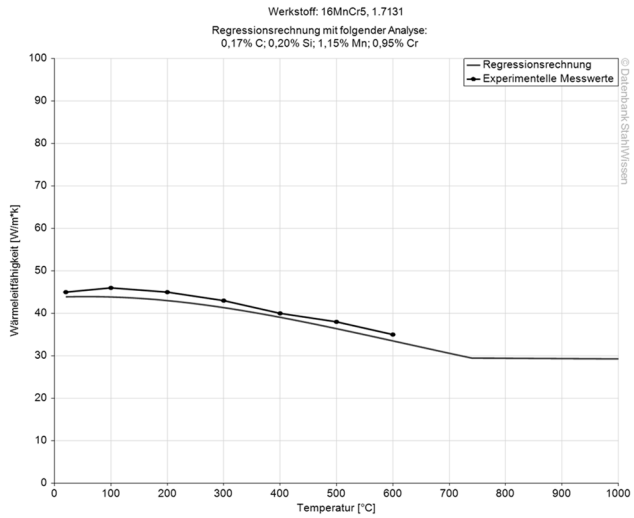
Thermal expansion coefficient diagram



Thermal conductivity diagram



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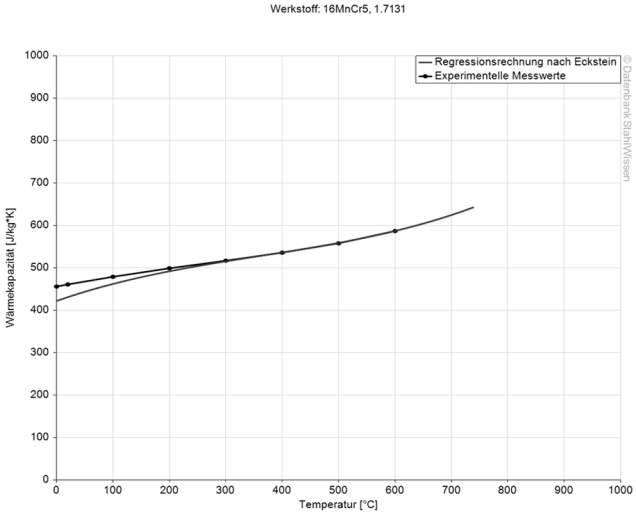
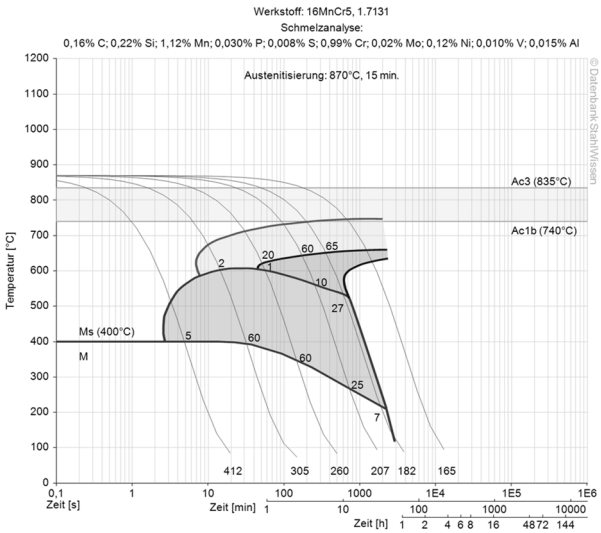
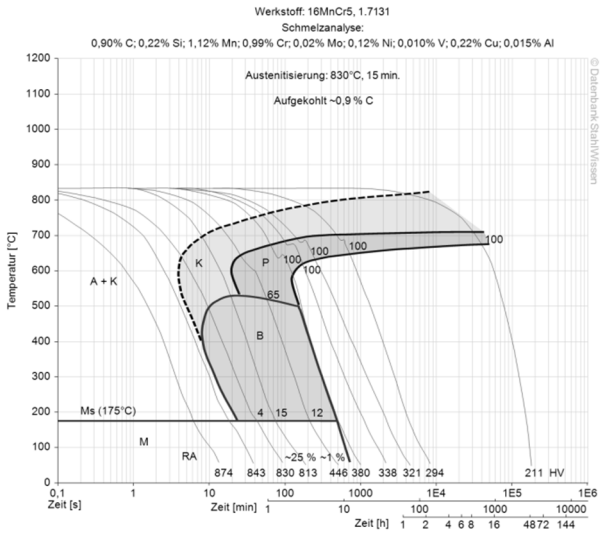
Thermal capacity diagram



Continuous ZTU-diagrams





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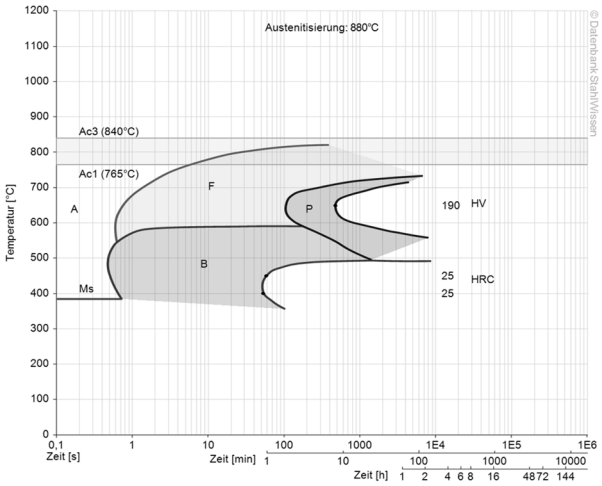
Isothermical ZTU-diagram

Werkstoff: 16MnCr5, 1.7131



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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