

Steel grade

Material No. / Werkstoff-Nr.	PREMIUM 1.4034
Description	X46Cr13
AISI/SAE	1.4034; 420C; S42000
Search for alternatives in the ABRAMS STEEL GUIDE®	www.steel-guide.eu/alternatives/1.4034

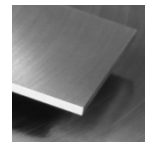
Specifications



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



€co-Präz [€co]
L: 500 mm



Hart-Präz [Hart]
L: 250 mm
L: 500 mm



Precision round steel without machining allowance [PRS] bright ground, ISO h9
L: 1.000 mm



Precision round steel with machining allowance [PRS/BA] peeled / rough-turned
L: 500 mm
L: 1.000 mm

Chemical composition AISI/SAE 1.4034 (reference value %)

C	Si	Mn	P	S	Cr
0,43 - 0,5	0 - 1,0	0 - 1,0	0 - 0,04	0 - 0,015	12,5 - 14,5

Physical properties

Hardness (delivery condition)	max. 241 HB, annealed			
Tensile strength R_m (as received condition)	approx. 815 N/mm ²			
Working hardness	max. 55 HRC			
Thermal expansion coefficient $10^{-6}m/(m \cdot K)$	20 - 100°C	20 - 200°C	20 - 300°C	20 - 400°C
	10,5	11,0	11,5	12,0
Thermal conductivity $W/(m \cdot K)$	20°C			
	30			

Technical properties

Corrosion resistant cold work and plastic mould steel with good machining properties, hardenable and polishable. Low distortion through-hardening steel with full hardenability and high wear resistance. The material is conditionally acid resistant.

Applications

Mechanical engineering, medical technology, plastic moulds, synthetic resin mould tools, die casting tools, light metal die casting, cutting tools, machine knives, kitchen knives, razors, shears, scraper blades, surgical instruments, measuring tools, roller bearings, ball bearings, ice-skates, pump parts, valves.

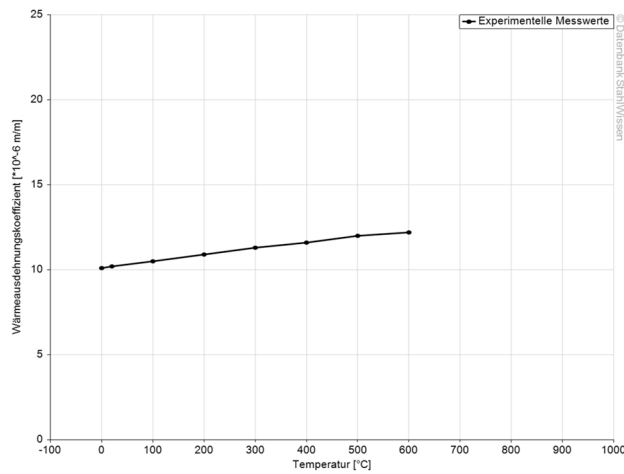


Heat treatment

	Temperature	Cooling	Hardness
Soft annealing	760 - 800°C	Furnace	max. 241 HB
Stress relief annealing	600 - 650°C	Furnace	
Hardening	Temperature	Quenching in	
	1000 - 1050°C	Air, oil, basin (500 - 550°C)	

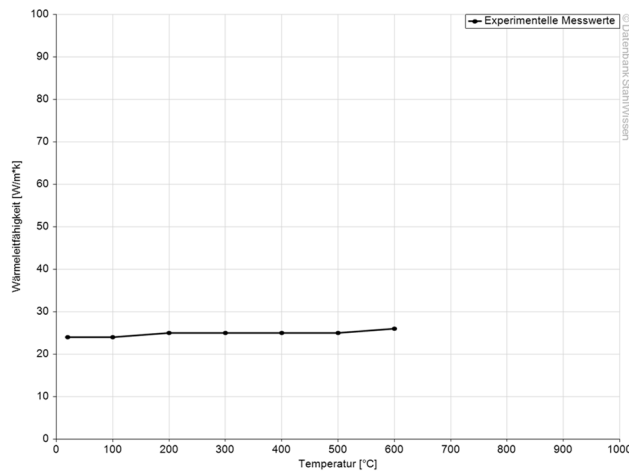
Thermal expansion coefficient diagram

Werkstoff: X46Cr13, 1.4034



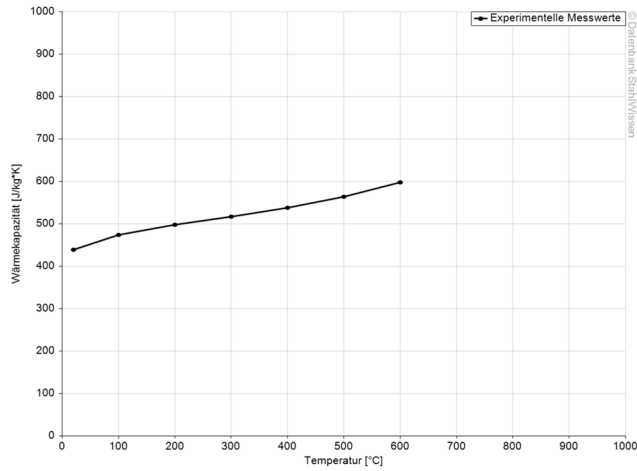
Thermal conductivity diagram

Werkstoff: X46Cr13, 1.4034



Thermal capacity diagram

Werkstoff: X46Cr13, 1.4034



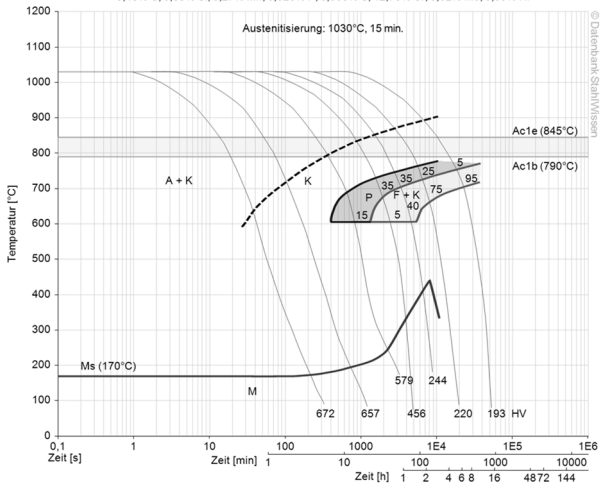
Continuous ZTU-diagrams

Werkstoff: X46Cr13, 1.4034

Schmelzanalyse:

0,45% C; 0,33% Si; 0,27% Mn; 0,020% P; 0,008% S; 12,73% Cr; 0,02% Mo; 0,09% Ni

Austenitisierung: 1030°C, 15 min.

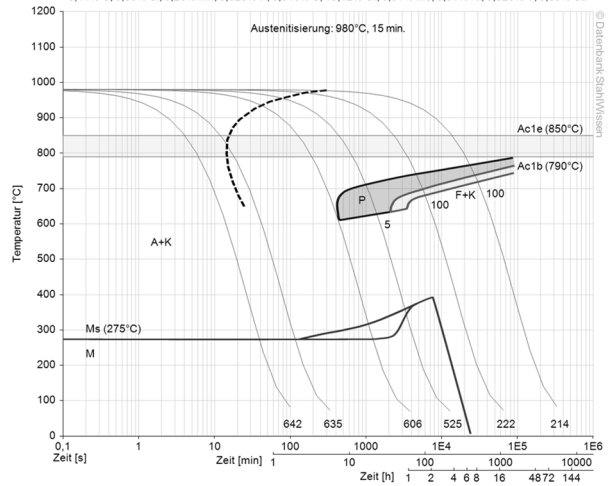


Werkstoff: X46Cr13, 1.4034

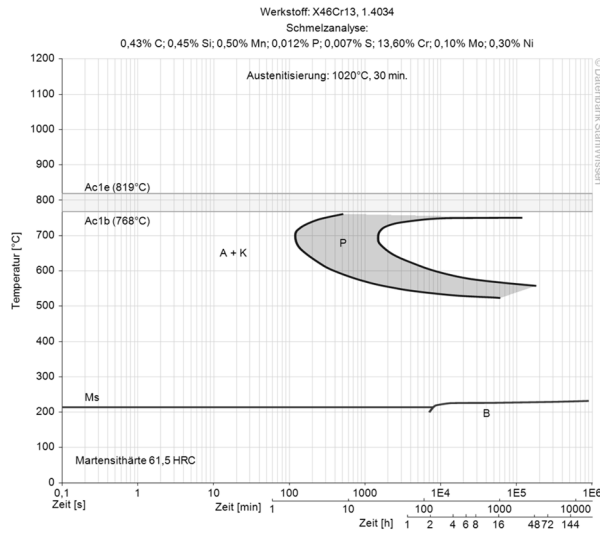
Schmelzanalyse:

0,44% C; 0,30% Si; 0,20% Mn; 0,025% P; 0,010% S; 13,12% Cr; 0,01% Mo; 0,31% Ni; 0,020% V; 0,09% Cu

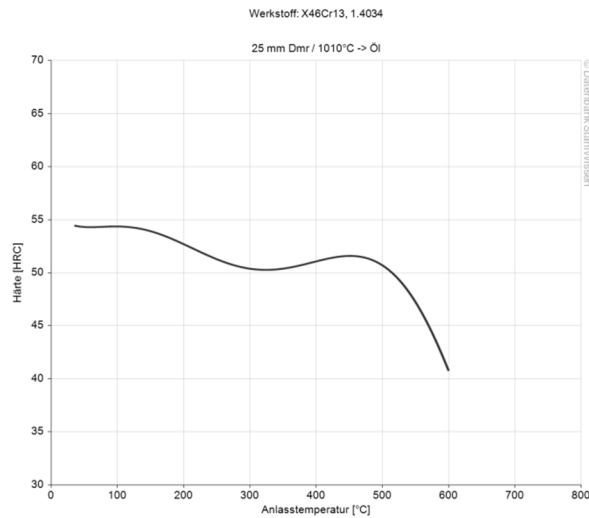
Austenitisierung: 980°C, 15 min.



Isothermal ZTU-diagram



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

