

Steel grade

Material No.	PREMIUM 420
AISI	420
Search for alternatives in the ABRAMS STEEL GUIDE	www.abrams-steelguide.com/alternatives/420

Shapes



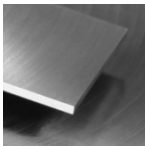
Precision Ground Flat Stock metric oversized [GFSM O/S]
L: 500 mm
L: 1,000 mm



Smart Flat Stock [Smart] Standardized Precision Blanks
L: 12"
L: 24"



Smart Flat Stock Metric [SmartM] Standardized Precision Blanks Metric
L: 300 mm
L: 600 mm



Hard Flat Metric [HardM] Hardened Standardized Blanks Metric
L: 250 mm
L: 500 mm



Cold Finish Rounds Metric [CFM] Precision Round Bars Metric
L: 914 mm (36")



Decarb Free Rounds [DCF] Oversize Round Bars
L: 18"
L: 36"

Chemical composition AISI 420 (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. 118.2 KSI				
Working hardness	max. 55 HRC				
Thermal expansion coefficient $10^{-6}m/(m \cdot K)$	68 - 212°F	68 - 392°F	68 - 572°F	68 - 752°F	
	10.5	11.0	11.5	12.0	
Thermal conductivity $W/(m \cdot K)$	68°F				
	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, conditionally acid resistant.

Applications

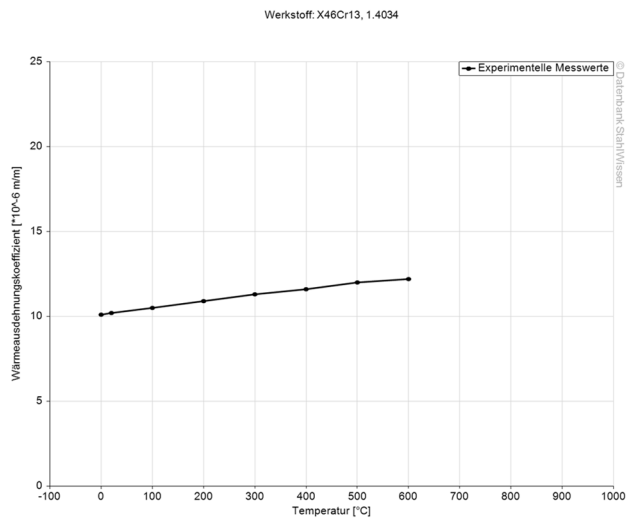
Mechanical engineering, medical technology, plastic molds, synthetic resin mold tools, die casting tools, light metal die casting, cutting tools, machine knives, kitchen knives, razors, shears, scraper blades, surgical instruments, measuring tools, roller bearings, ball bearings, ice-skates, pump parts,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



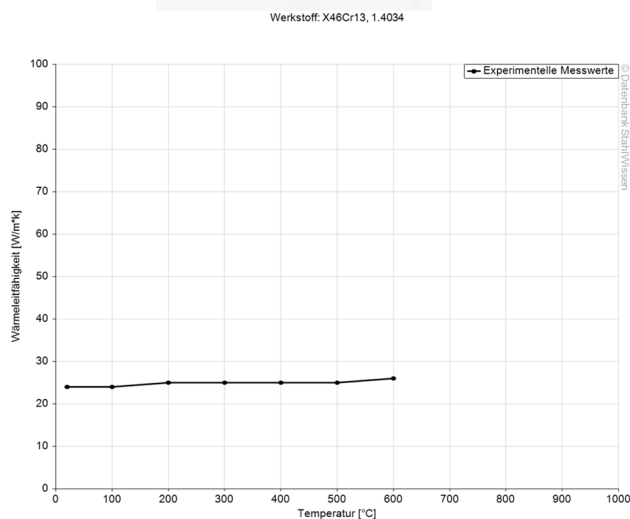
Heat treatment

	Temperature	Cooling	Hardness
Soft annealing	1400 - 1472°F	Furnace	max. 241 HB
Stress relief annealing	1112 - 1202°F	Furnace	
Hardening	1832 - 1922°F	Quenching in Air, oil, basin (932 - 1022°F)	

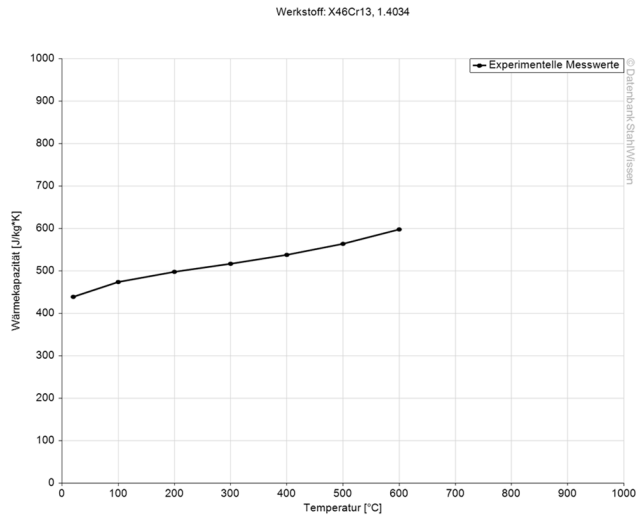
Thermal expansion coefficient diagram



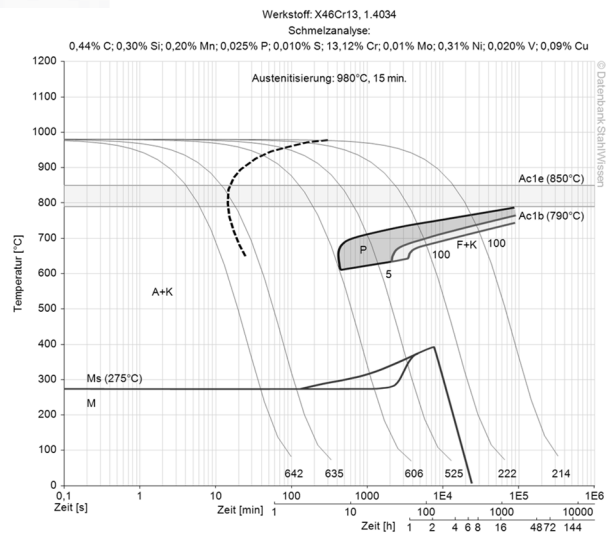
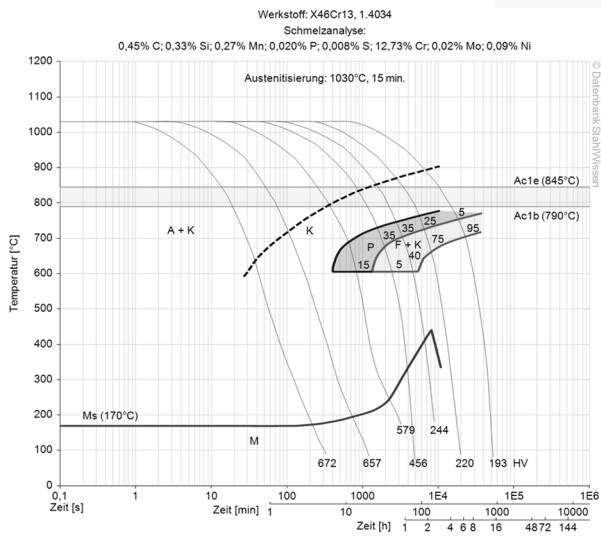
Thermal conductivity diagram



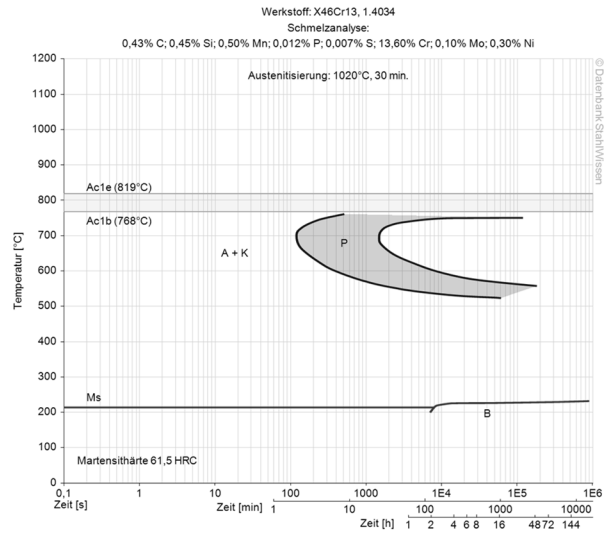
Thermal capacity diagram



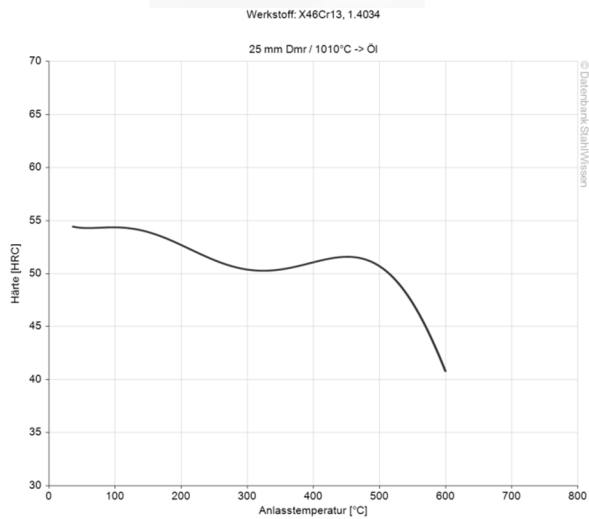
Continuous ZTU-diagrams



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

