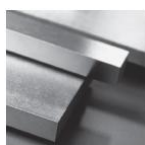


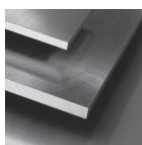
## Steel grade

Material No. / Werkstoff-Nr.	PREMIUM 1.4034
Description	X46Cr13
BS	1.4034
AISI/SAE	1.4034; 420; S42000
Search for alternatives in the ABRAMS STEEL GUIDE®	<a href="http://www.steel-guide.co.uk/alternatives/1.4034">www.steel-guide.co.uk/alternatives/1.4034</a>

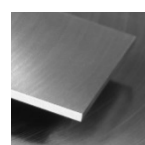
## Specifications



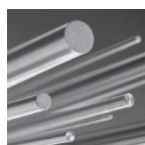
**Precision flat steel with machining allowance [PFS/BA]**  
L: 1.000 mm



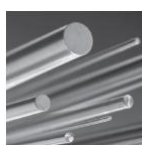
**€co-Präz® [€co]**  
L: 500 mm



**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 BS 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 <sup>2</sup>			
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.

## Applications

Machine construction, 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.

## ABRAMS PREMIUM STEEL

is a registered trademark of  
Abrams Engineering Services GmbH & Co. KG  
Hannoversche Str. 38 · 49084 Osnabrueck / Germany  
Managing Director: Dipl.-Wi.-Ing. Dr. Juergen Abrams

Amtsgericht Osnabrueck / Germany, HRA 6865  
VAT-No.: DE 221940667  
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Amtsgericht Osnabrueck / Germany, HRB 20019

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F: +44 (0) 121 368 0911  
E: [sales@premium-steel.co.uk](mailto:sales@premium-steel.co.uk)

[www.premium-steel.co.uk](http://www.premium-steel.co.uk)  
[www.steel-guide.co.uk](http://www.steel-guide.co.uk)  
[shop.premium-steel.co.uk](http://shop.premium-steel.co.uk)

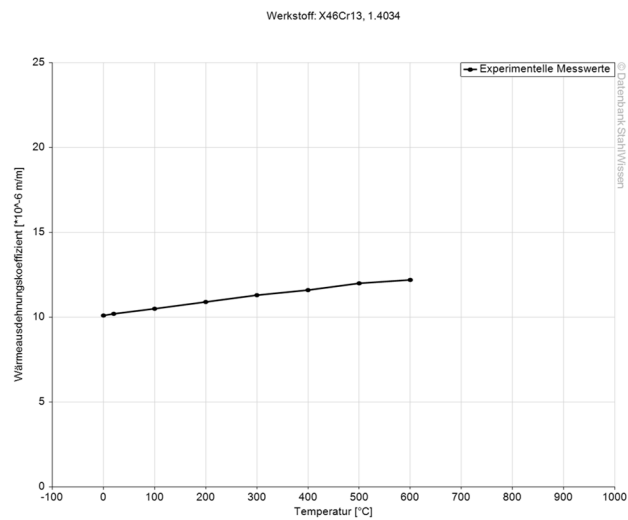
[www.premium-steel.co.uk/news](http://www.premium-steel.co.uk/news)



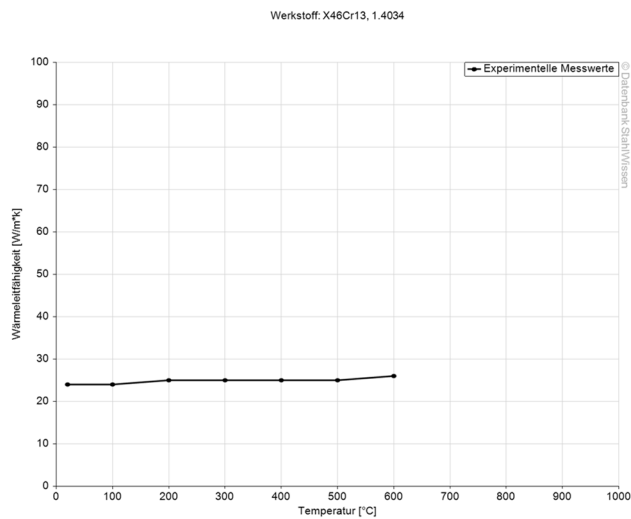
## Heat treatment

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

## Thermal expansion coefficient diagram



## Thermal conductivity diagram



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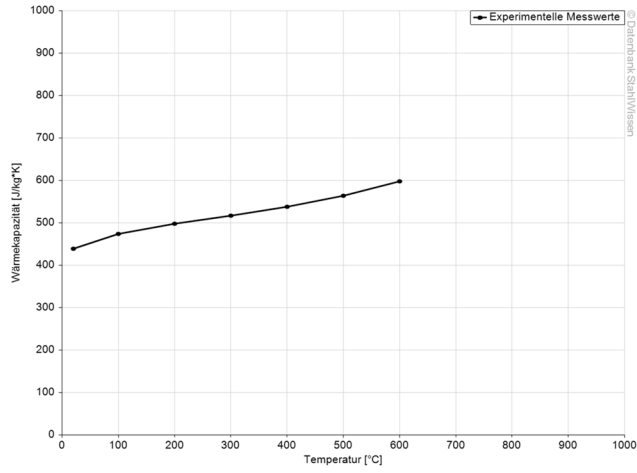
www.premium-steel.co.uk  
 www.steel-guide.co.uk  
 shop.premium-steel.co.uk

[www.premium-steel.co.uk/news](http://www.premium-steel.co.uk/news)



## Thermal capacity diagram

Werkstoff: X46Cr13, 1.4034



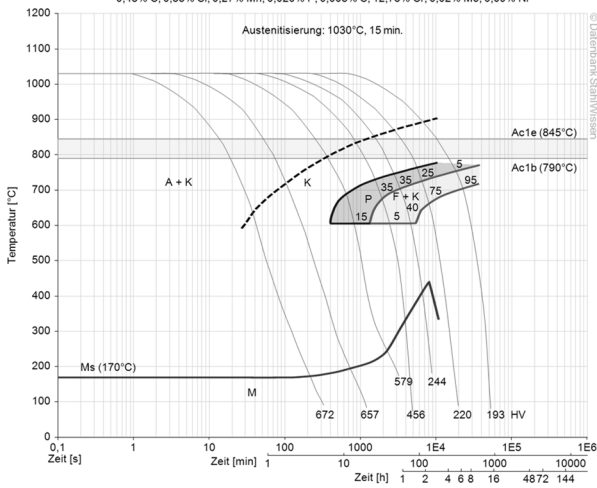
## Continuous TZU-diagrams

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.

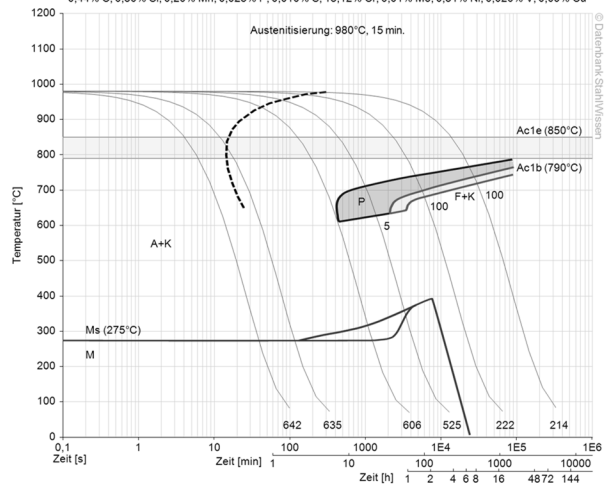


Werkstoff: X46Cr13, 1.4034

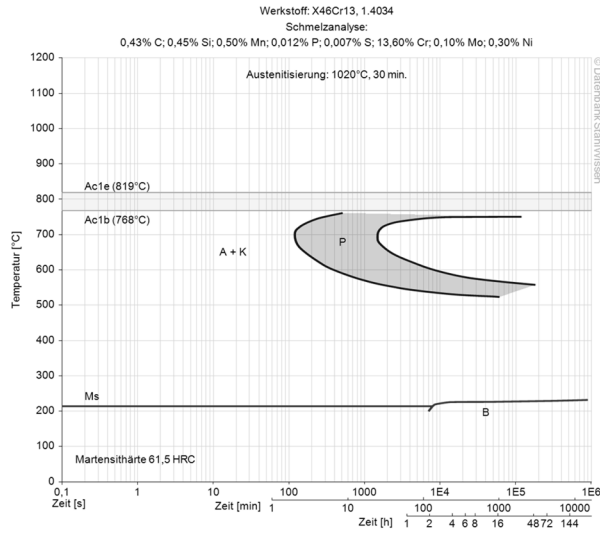
Schmelzanalyse:

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

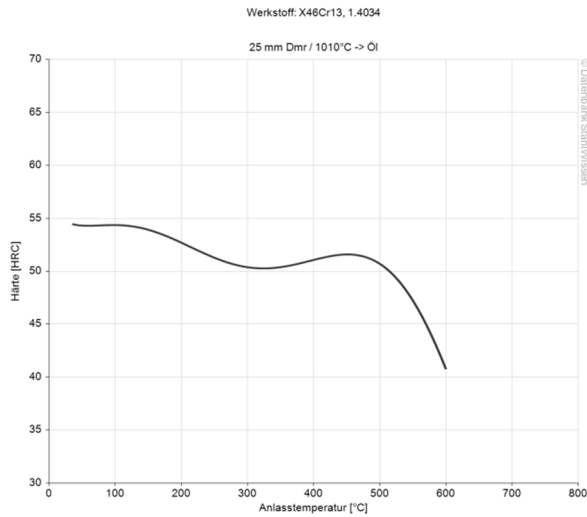
Austenitisierung: 980°C, 15 min.



## 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

