

## Steel grade

Material No. / Werkstoff-Nr.	PREMIUM 1.2436
Description	X210CrW12
BS	BD 6
AISI/SAE	D6
Search for alternatives in the ABRAMS STEEL GUIDE®	<a href="http://www.steel-guide.co.uk/alternatives/BD6">www.steel-guide.co.uk/alternatives/BD6</a>

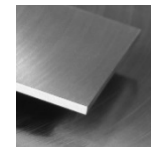
## Specifications



**Precision flat steel**  
without machining allowance, DIN 59350 [PFS]  
L: 500 mm



**Precision flat steel**  
with machining allowance  
[PFS/BA]  
L: 500 mm  
L: 1,000 mm



**Hart-Präz® Hart]**  
L: 250 mm  
L: 500 mm



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

## Chemical composition BS BD 6 (reference value %)

C	Si	Mn	P	S	Cr	W
2.0 – 2.3	0.1 – 0.4	0.3 – 0.6	0 – 0.03	0 – 0.03	11.0 – 13.0	0.6 – 0.8

## Physical properties

Hardness (delivery condition)	max. 255 HB, annealed						
Tensile strength $R_m$ (as received condition)	approx. 860 N/mm <sup>2</sup>						
Working hardness	max. 63 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
	10.9	11.9	12.3	12.6	12.9	13.0	13.2
Thermal conductivity $W/(m \cdot K)$	20°C	350°C	700°C				
	16.7	20.5	24.2				

## Technical properties

Cold work steel with maximum wear resistance and cutting power (for plates: thickness up to 4 mm). Full hardenability, good dimensional stability, but medium toughness. Due to its tungsten content this steel grade has a higher tempering resistance and higher wear permanence compared to AISI/SAE D3 mod.

## Applications

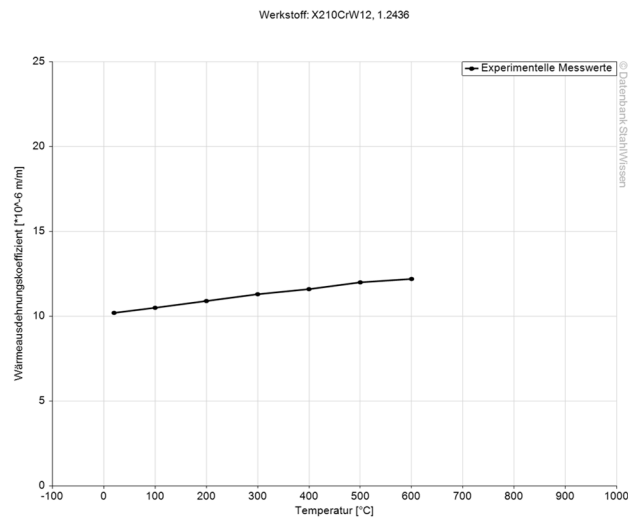
Blanking tools, stamping tools, embossing tools, scraping tools, trimming tools, woodworking tools, drawing tools, press tools, stone moulds, sintered tools, machine knives, hammer cores, ring rollers, thread rolling dies, plastic moulds.



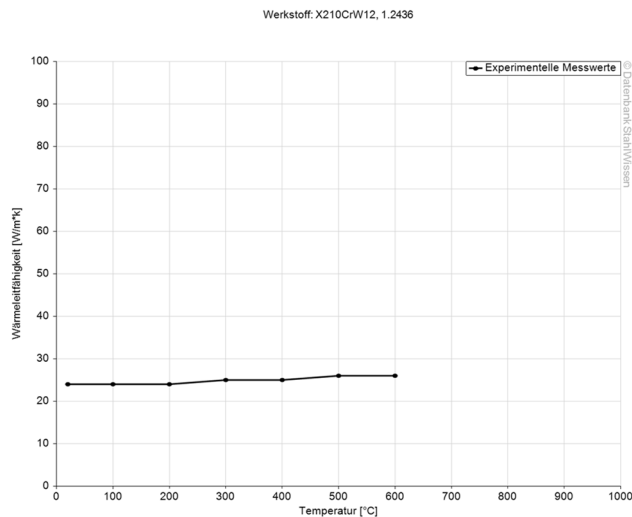
## Heat treatment

	Temperature	Cooling	Hardness			
Soft annealing	800 - 840°C	Furnace	max. 255 HB			
	Temperature	Cooling				
Stress relief annealing	650 - 700°C	Furnace				
	Temperature	Quenching in	Hardness after quenching			
Hardening	950 - 980°C	Air, oil, hot basin (500 - 550°C)	64 HRC			
	100°C	200°C	300°C	400°C	500°C	600°C
Tempering	63 HRC	62 HRC	60 HRC	58 HRC	56 HRC	48 HRC

## Thermal expansion coefficient diagram

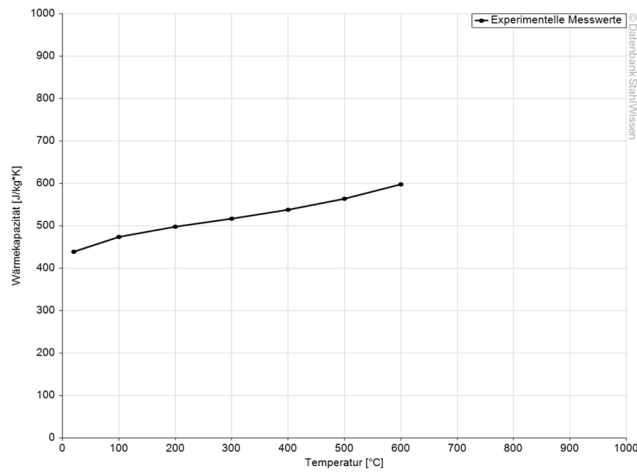


## Thermal conductivity diagram



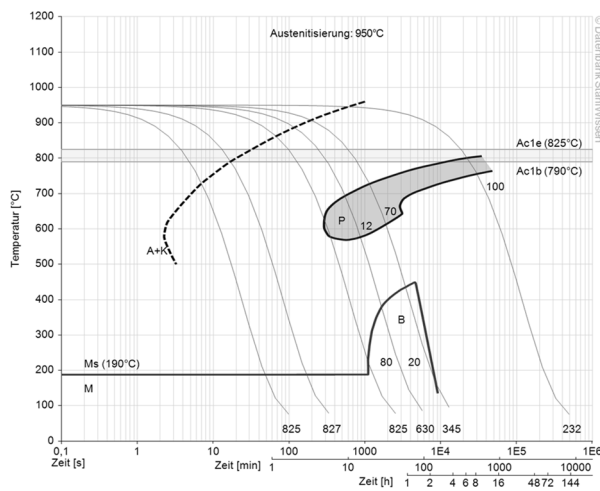
## Thermal capacity diagram

Werkstoff: X210CrW12, 1.2436

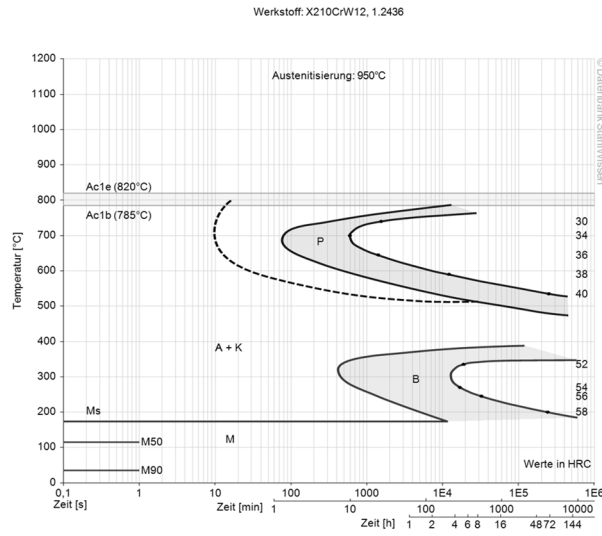


## Continuous ZTU-diagram

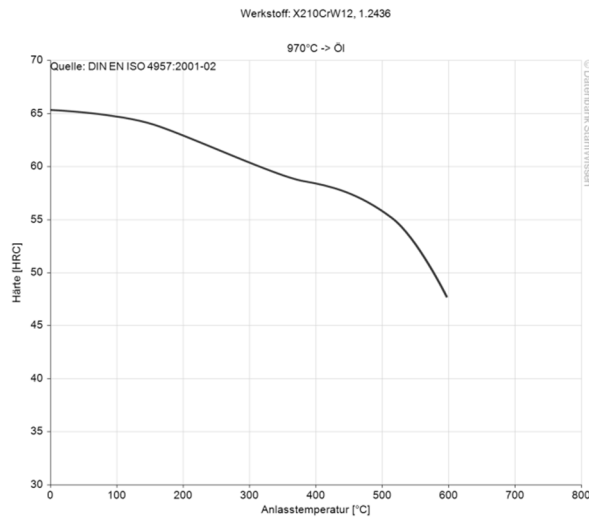
Werkstoff: X210CrW12, 1.2436



## 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

