

Steel grade

Material No. / Werkstoff-Nr.	PREMIUM 1.2436
Description	X210CrW12
AISI/SAE	D6
Search for alternatives in the ABRAMS STEEL GUIDE®	www.steel-guide.eu/alternatives/D6

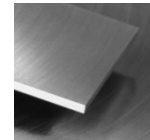
Specifications



**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 AISI/SAE D6 (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 ²						
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

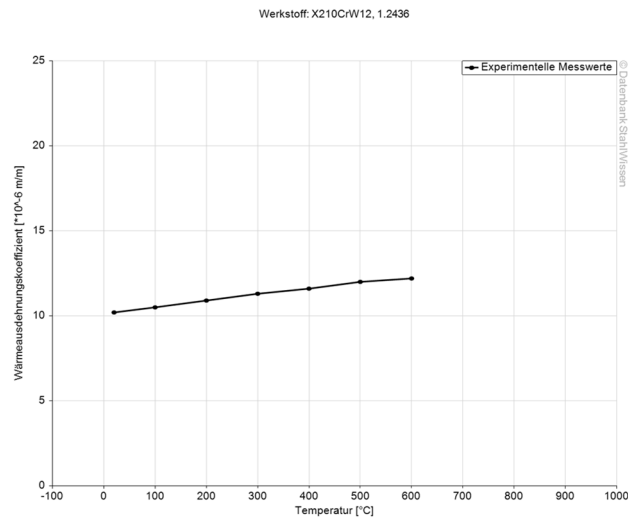
Blanking tools, stamping tools, embossing tools, scraping tools, trimming tools, woodworking tools, drawing tools, press tools, stone moulds, sintered tools, machine knives, hammer cores, ring rollers, thread rolling dies, plastic moulds.



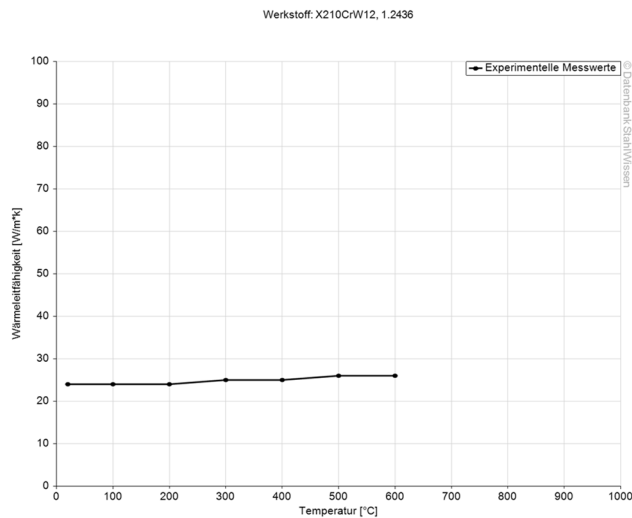
Heat treatment

	Temperature	Cooling		Hardness		
Soft annealing	800 - 840°C	Furnace		max. 255 HB		
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

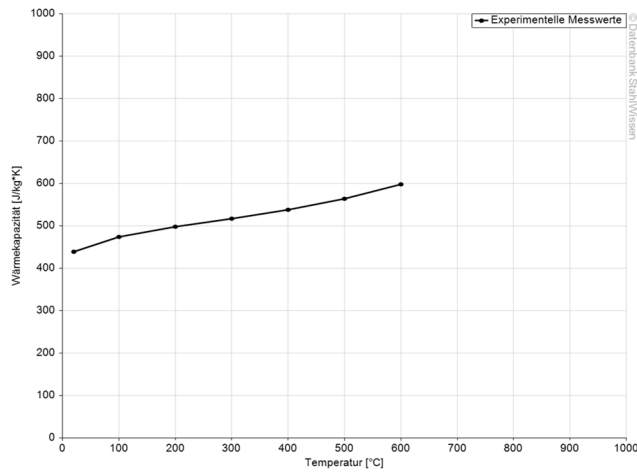


Thermal conductivity diagram



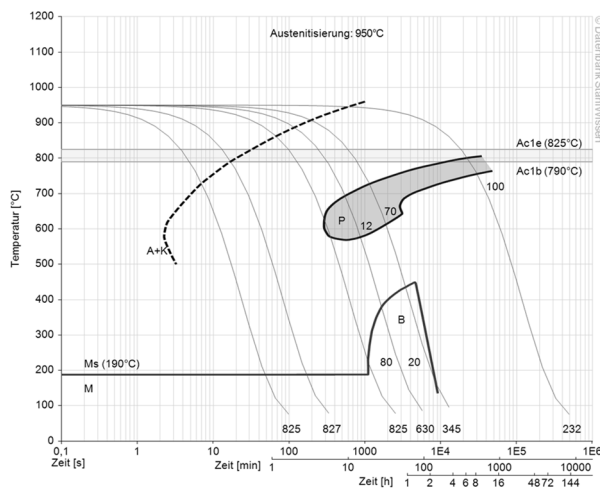
Thermal capacity diagram

Werkstoff: X210CrW12, 1.2436

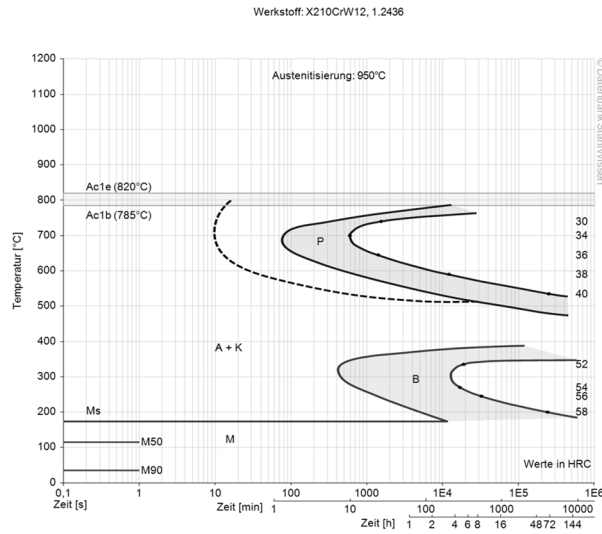


Continuous ZTU-diagram

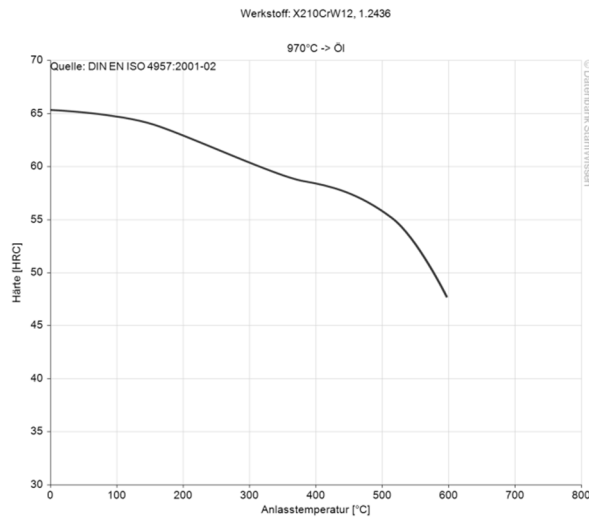
Werkstoff: X210CrW12, 1.2436



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

