

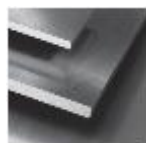
Steel grade

Material No. / Werkstoff-Nr.	PREMIUM 1.2379
Description	X153CrMoV12
AISI/SAE	D2; T30402
Search for alternatives in the ABRAMS STEEL GUIDE®	www.steel-guide.eu/alternatives/D2

Specifications



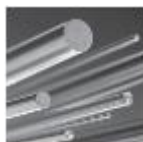
Precision flat steel with machining allowance [PFS/BA]
 L: 200 mm, 300 mm
 L: 400 mm, 500 mm
 L: 600 mm, 1.000 mm



Eco-Präz* [Eco]
 L: 500 mm



Erosion block [EB]
 annealed
 hardened



Precision round steel without machining allowance [PRS]
 bright ground, ISO h8
 L: 1.000 mm
with machining allowance [PRS/BA]
 peeled / rough-turned
 L: 500 mm
 L: 1.000 mm

Chemical composition AISI/SAE D2 (reference value %)

C	Si	Mn	P	S	Cr	Mo	V
1,45 - 1,6	0,1 - 0,6	0,2 - 0,6	0 - 0,03	0 - 0,03	11,0 - 13,0	0,7 - 1,0	0,7 - 1,0

Physical properties

Hardness (delivery condition)	max. 255 HB, annealed (Erosion block annealed or hardened)			
Tensile strength R_m (as received condition)	approx. 860 N/mm ²			
Working hardness	max. 62 HRC			
Thermal expansion coefficient $10^{-6} m/(m \cdot K)$	20 - 100°C	20 - 200°C	20 - 300°C	20 - 400°C
	10,5	11,5	11,9	12,2
Thermal conductivity $W/(m \cdot K)$	20°C	350°C	700°C	
	16,7	20,5	24,2	

Technical properties

Secondary-hardening, ledeburitic cold work steel, can be used for a wide range of applications. Low distortion, excellent wear resistance and good toughness. Temper-resistant, even at high hardening temperatures. In addition it can be nitrated without any reduction in hardness – even for cold work steel.

Applications

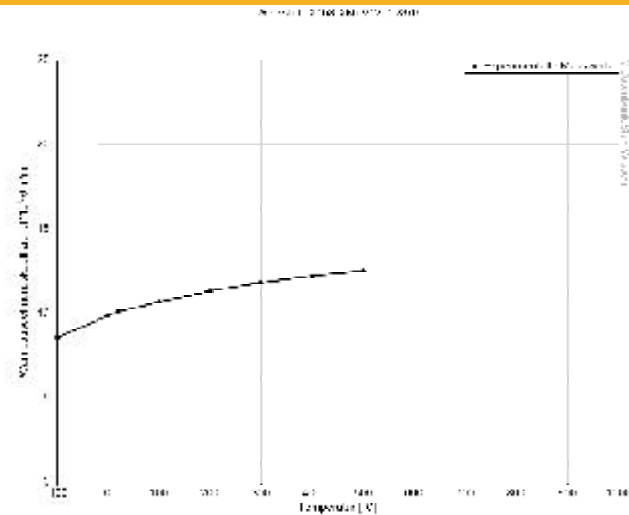
Blanking tools, precision cutting tools, dies, punches, thread rolling dies, broaches, milling cutters, press tools, shear knives, deep drawing dies, cold rollings, measuring tools, woodworking tools, cold pilger mandrels, plastic moulds.



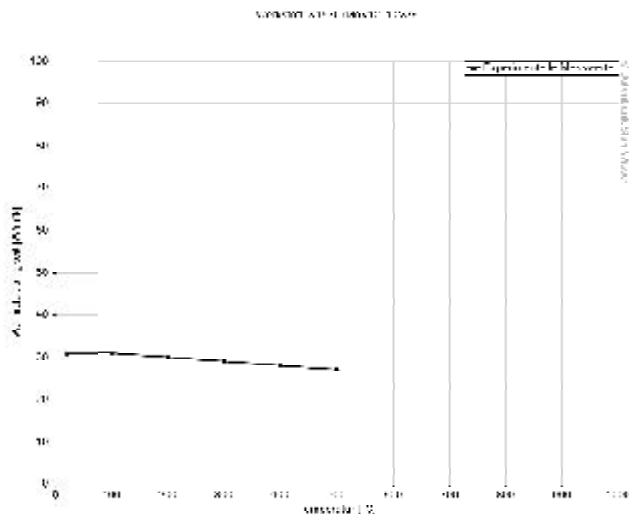
Heat treatment

	Temperature	Cooling	Hardness					
Soft annealing	830 - 860°C	Furnace	max. 255 HB					
Stress relief annealing	Temperature	Cooling						
	650 - 700°C	Furnace						
Hardening	Temperature	Quenching in	Hardness after quenching					
	1000 - 1050°C	Air, oil, hot basin (500 - 550°C)	63 HRC					
Tempering	100°C	200°C	300°C	400°C	500°C	525°C	550°C	600°C
	63 HRC	61 HRC	58 HRC	58 HRC	58 HRC	60 HRC	56 HRC	50 HRC

Thermal expansion coefficient diagram



Thermal conductivity diagram



ABRAMS PREMIUM STEEL

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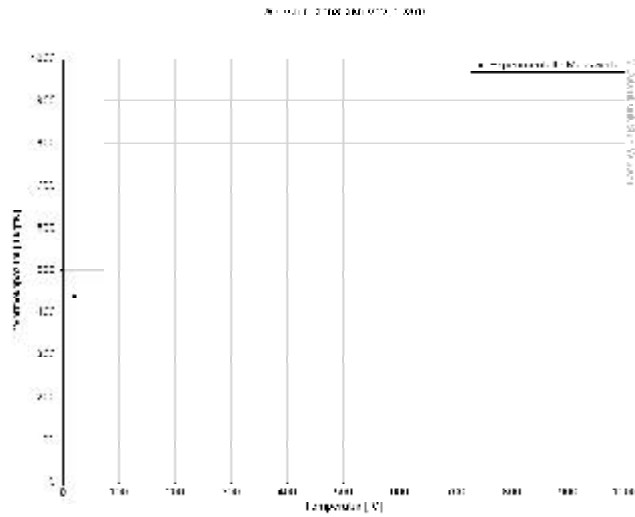
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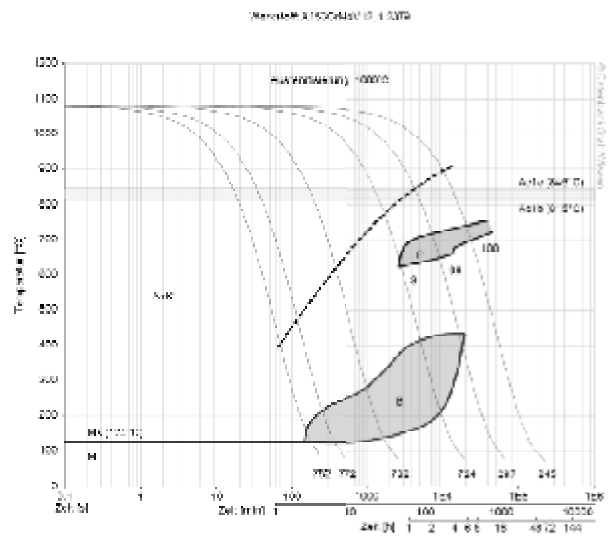
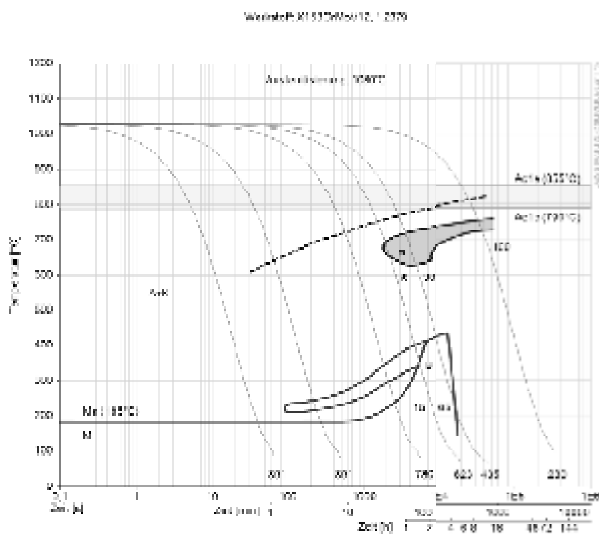
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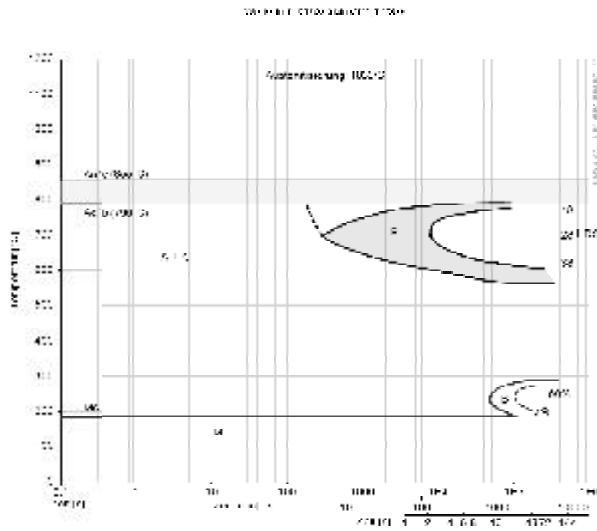
Thermal capacity diagram



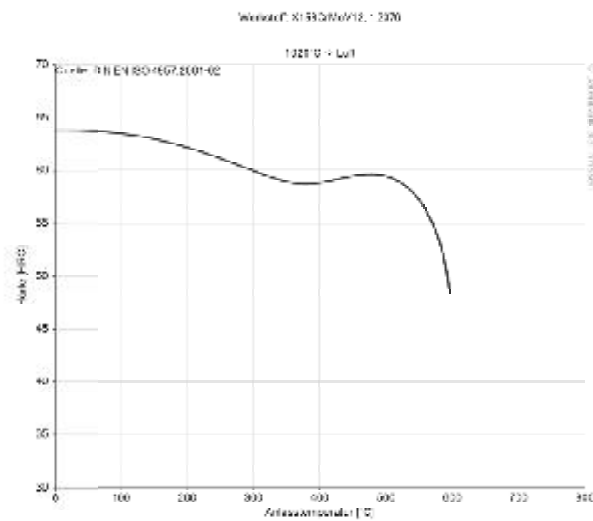
Continuous ZTU-diagrams



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
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