

Steel grade

Material No.	PREMIUM 440B
AISI	440B; S44003
Search for alternatives in the ABRAMS STEEL GUIDE	www.abrams-steelguide.com/alternatives/440B

Shapes



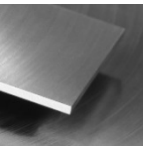
Precision Ground Flat Stock Metric oversize [GFSM O/S]
L: 500 mm
L: 1,000 mm



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 [HartM] Hardened Standardized Blanks Metric
L: 250 mm
L: 500 mm



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

Chemical composition AISI 440B (reference value %)

C	Si	Mn	P	S	Cr	Mo	V
0.85 - 0.95	0 - 1.0	0 - 1.0	0 - 0.04	0 - 0.015	17.0 - 19.0	0.9 - 1.3	0.07 - 0.12

Physical properties

Hardness (delivery condition)	max. 265 HB, annealed			
Tensile strength R_m (as received condition)	approx. 134.1 KSI			
Working hardness	max. 53-58 HRC			
Thermal expansion coefficient $10^{-6}m/(m \cdot K)$	68 - 212°F	68 - 392°F	68 - 572°F	68 - 752°F
	10.3	10.8	11.2	11.6
Thermal conductivity $W/(m \cdot K)$	68°F	662°F		
	15.9	20.6		

Technical properties

Corrosion resistant martensitic chrome-steel (approx. 18 % Cr) for cold work. Reaches an unusually high hardness and high wear resistance after heat treatment. High gloss polishable and conditionally acid resistant.

Applications

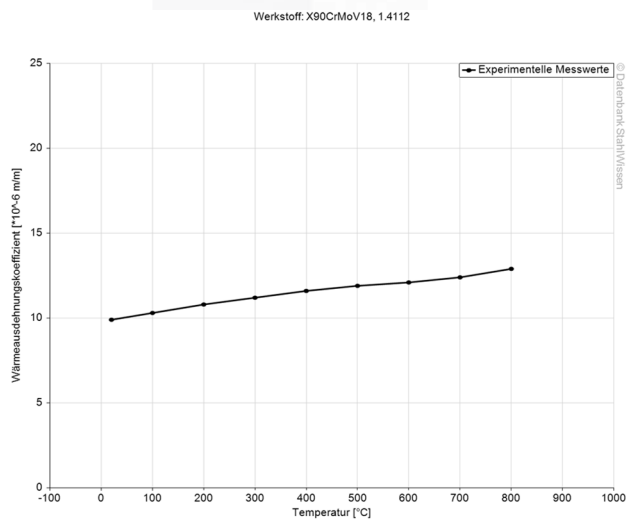
Cutting tools, knives, knife blades, cutlery, guide rails, wear parts, perforated discs, screw elements, pump shafts, scale pans, horizontal cutting, surgical instruments, plastic molds, injection nozzles, roller bearings, ball bearings, mechanical engineering, food industry, building industry.



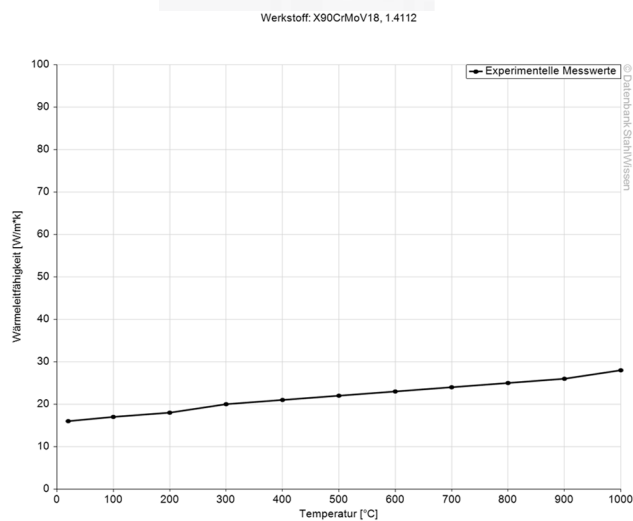
Heat treatment

	Temperature	Cooling	Hardness
Soft annealing	1436 - 1544°F	Furnace	max. 265 HB
Stress relief annealing	1112 - 1202°F	Furnace	
Hardening	1832 - 1922°F	Quenching in	
		Air, oil, hot basin (932 - 1022°F), compressed gas (N ₂)	
Tempering	212°F	572°F	752°F
	59 HRC	57 HRC	40 HRC

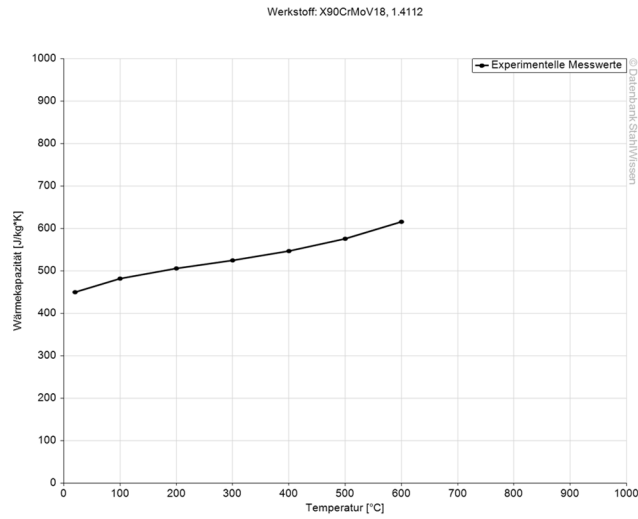
Thermal expansion coefficient diagram



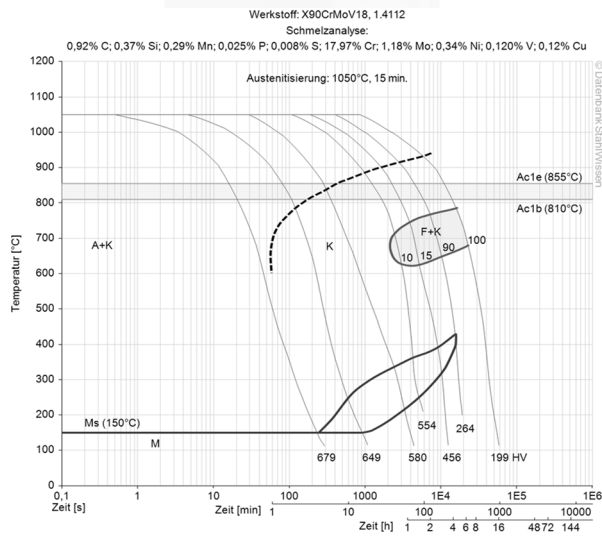
Thermal conductivity diagram



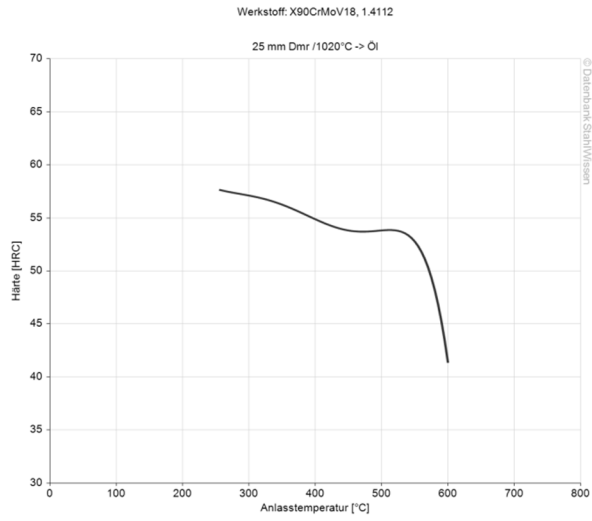
Thermal capacity diagram



Continuous ZTU-diagram



Tempering diagram



The data shown here is to be used only as an indication of the statistics, thus we accept no liability.
Diagramsare taken from Datenbank StahlWissen Dr. Sommer Werkstofftechnik
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