ABRAMS INDUSTRIES®

Steel grade

Material No. / Werkstoff-Nr.	PREMIUM 1.4122
Description	X39CrMo17-1
AISI/SAE	1.4122
Search for alternatives in the ABRAMS STEEL GUIDE®	**www.steel-guide.eu/alternatives/1.4122**

Specifications

€co-Präz® [€co]
L: 300 mm
L: 500 mm

Precision round steel
without machining allowance [PRS]
bright drawn / 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 AISI/SAE 1.4122 (reference value %)

C	Si	Mn	P	S	Cr	Mo	Ni
0,33 - 0,45	0 - 1,0	0 - 1,5	0 - 0,045	0 - 0,03	15,5 - 17,5	0,8 - 1,3	0 - 1,0

Physical properties

Hardness (delivery condition)	max. 325 HB, tempered			
Tensile strength R_m (as received condition)	approx. 1.100 N/mm²			
Working hardness	max. 48 HRC			
Thermal expansion coefficient 10^{-6}m/(m • K)	20 - 100°C	20 - 200°C	20 - 300°C	20 - 400°C
	10,4	10,8	11,2	11,6
Thermal conductivity W/(m • K)	20°C			
	29,0			

Technical properties

Pre-hardened corrosion resistant chrome-steel with good polishing properties, heat resistance and wear resistance. Often used for processing chemically aggressive plastic materials (e.g. PVC). The material is conditionally acid resistant.

Applications

Mechanical engineering, marine engineering, apparatus engineering, plastic processing, plastic moulds, extrusion tools, press moulds, fitting tools, shafts, spindles, bolts, pistons, valves, steam valves, water valves, beater bars, fittings parts, pump construction, pump rods, compressor construction, compressor parts, surgical instruments.

Heat treatment

Soft annealing	**Temperature**		**Cooling**	**Hardness**
	750 - 820°C		Furnace, Air	max. 325 HB
Stress relief annealing	**Temperature**		**Cooling**	
	600 - 650°C		Furnace	
Hardening	**Temperature**		**Quenching in**	
	1000 - 1040°C		Hot basin (500 - 550°C)	
Tempering	100°C	200°C	500°C	600°C
	49 HRC	47 HRC	45 HRC	30 HRC

Divisions of
ABRAMS Industries GmbH & Co. KG
Hannoversche Str. 38 / 46
49084 Osnabrück
Germany

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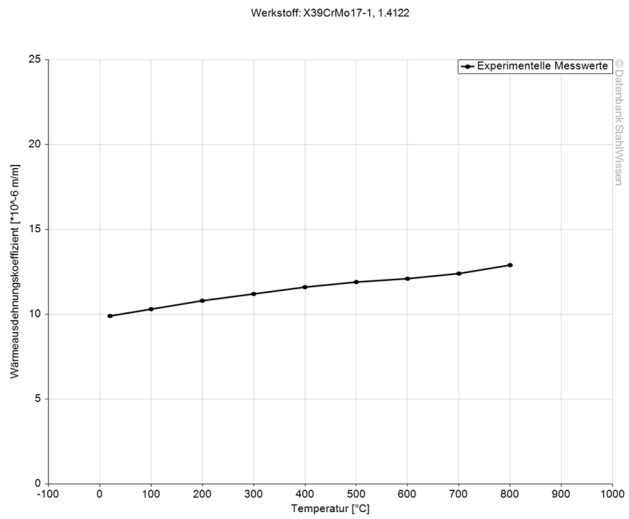
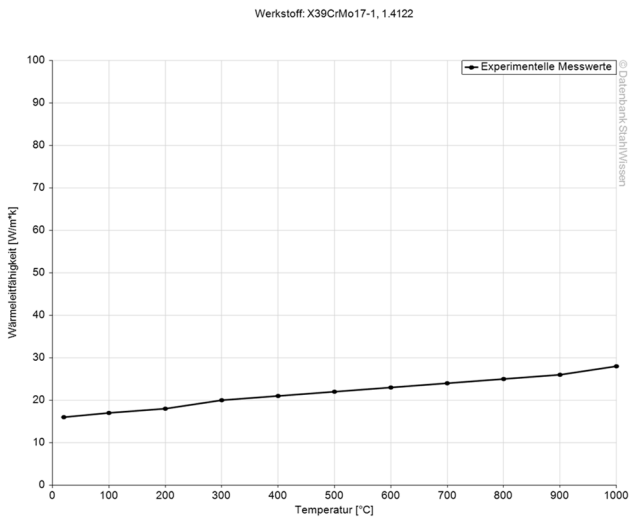
Thermal expansion coefficient diagram



Thermal conductivity diagram



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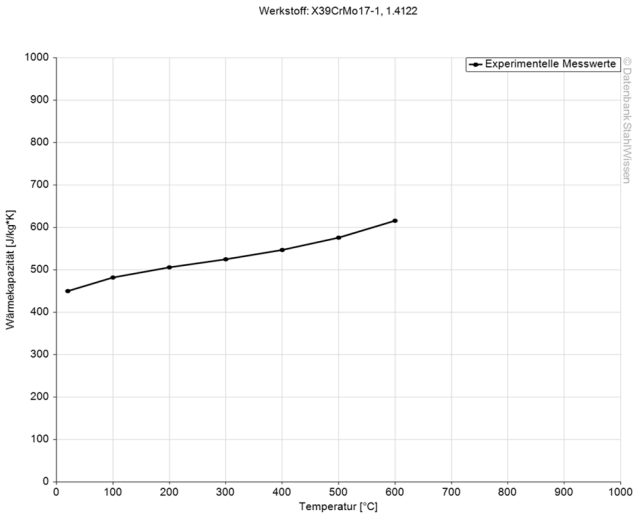
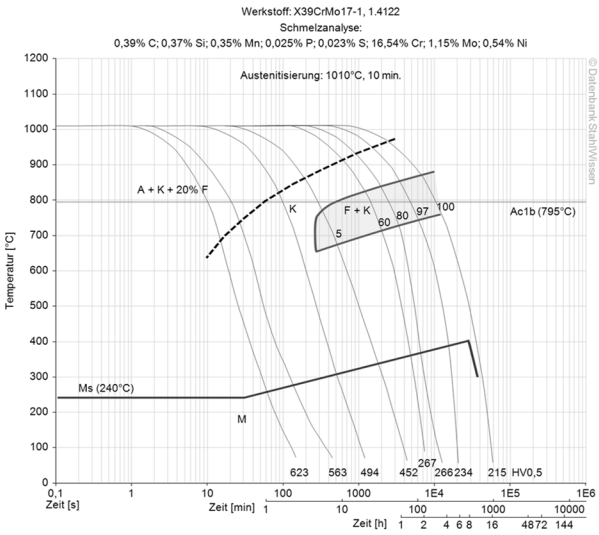
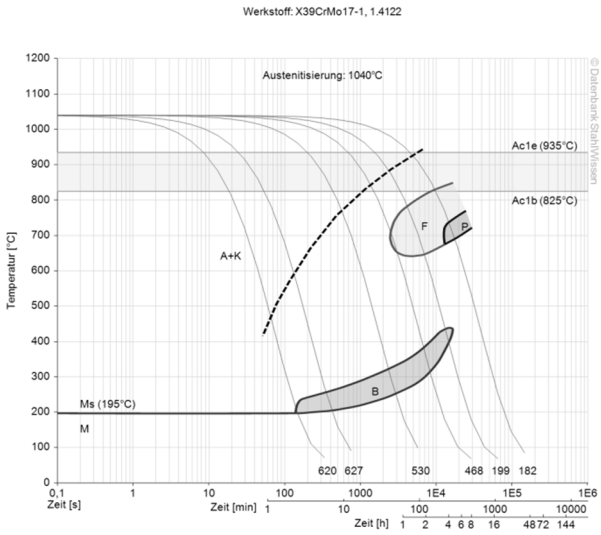
Thermal capacity diagram

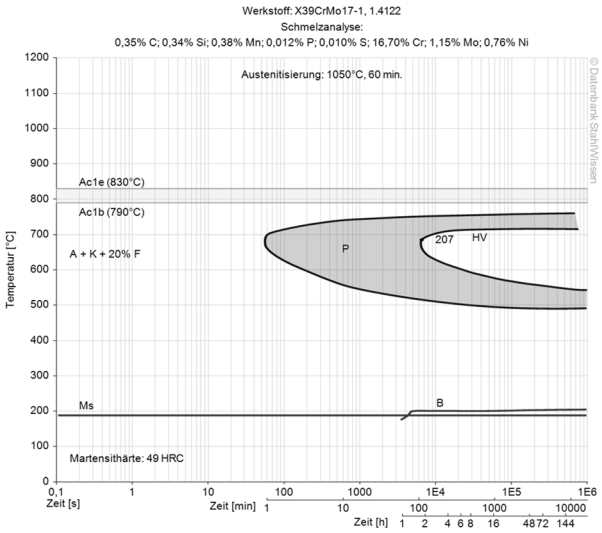


Continuous ZTU-diagrams

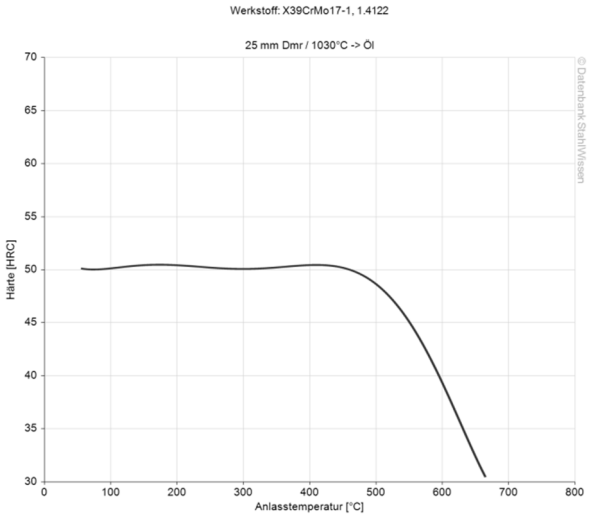




Isothermical ZTU-diagram



Tempering diagram



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