

## Steel grade

Material No. / Werkstoff-Nr.	PREMIUM 1.4122
Description	X39CrMo17-1
AISI/SAE	1.4122
Search for alternatives in the ABRAMS STEEL GUIDE®	<a href="http://www.steel-guide.eu/alternatives/1.4122">www.steel-guide.eu/alternatives/1.4122</a>

## 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/mm <sup>2</sup>			
Working hardness	max. 48 HRC			
Thermal expansion coefficient $10^{-6}m/(m \cdot K)$	20 - 100°C	20 - 200°C	20 - 300°C	20 - 400°C
	10,4	10,8	11,2	11,6
Thermal conductivity $W/(m \cdot K)$	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.

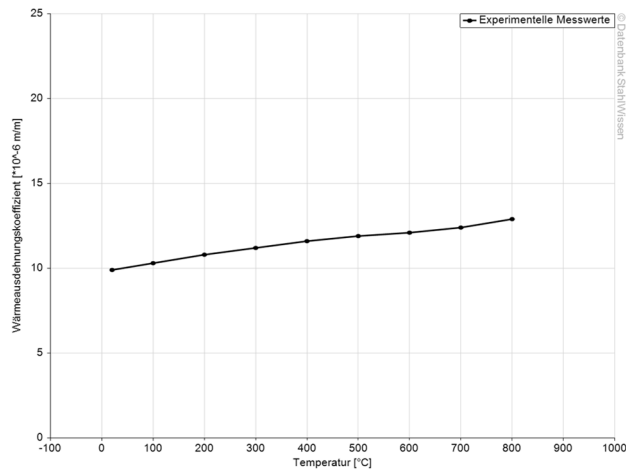
## Heat treatment

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



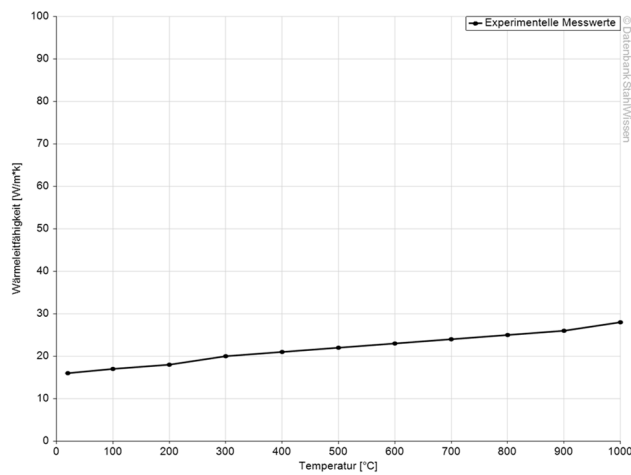
## Thermal expansion coefficient diagram

Werkstoff: X39CrMo17-1, 1.4122



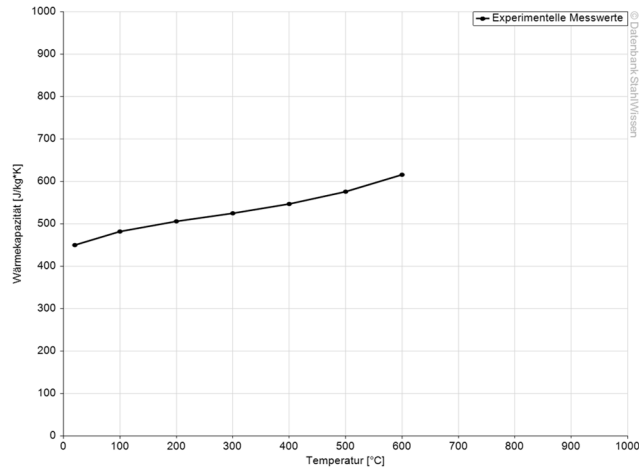
## Thermal conductivity diagram

Werkstoff: X39CrMo17-1, 1.4122



## Thermal capacity diagram

Werkstoff: X39CrMo17-1, 1.4122

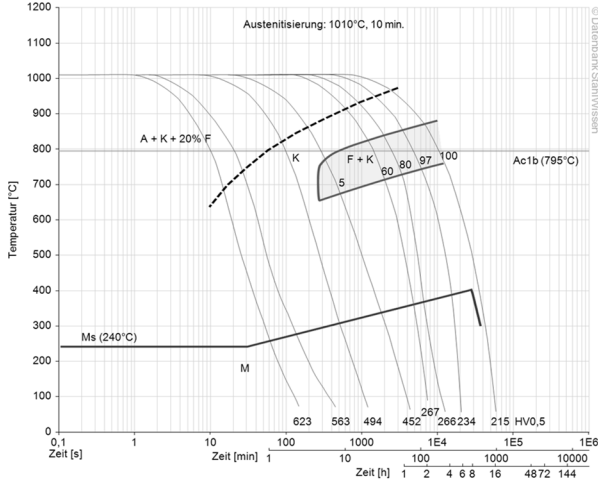


## Continuous ZTU-diagrams

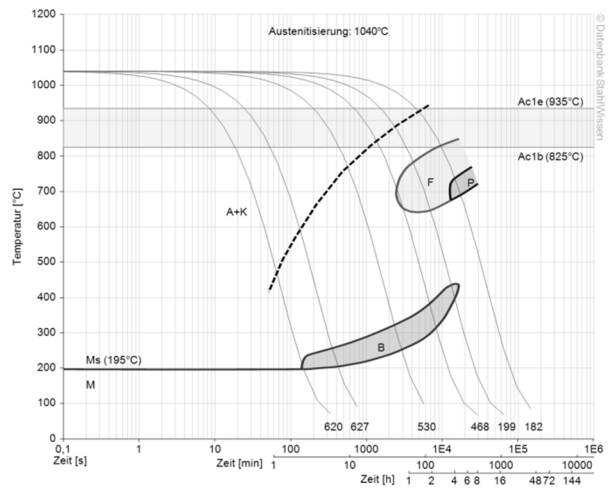
Werkstoff: X39CrMo17-1, 1.4122

Schmelzanalyse:

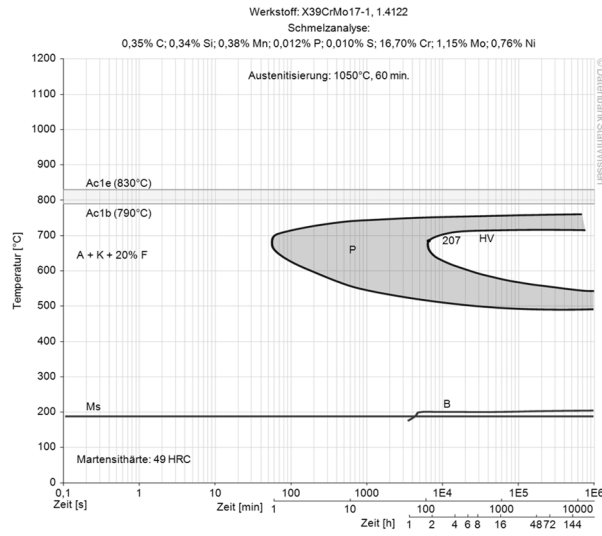
0,39% C; 0,37% Si; 0,35% Mn; 0,025% P; 0,023% S; 16,54% Cr; 1,15% Mo; 0,54% Ni



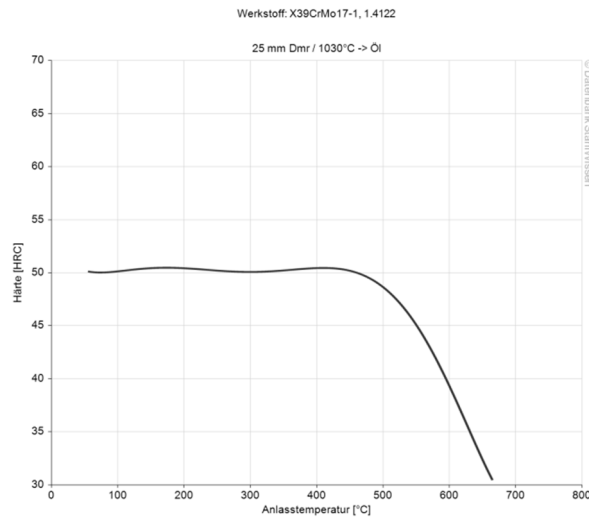
Werkstoff: X39CrMo17-1, 1.4122



## 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

