

## Steel grade

Material No. / Werkstoff-Nr.	PREMIUM 1.2067 / 1.3505
Description	102Cr6 / 100Cr6
BS	BL 3 / BL 1
AISI/SAE	L3; T61203 / L1
Search for alternatives in the ABRAMS STEEL GUIDE®	<a href="http://www.steel-guide.co.uk/alternatives/BL3">www.steel-guide.co.uk/alternatives/BL3</a>

## Specifications



**Eco-Präz® [Eco]**  
L: 500 mm



**Precision round steel without machining allowance [PRS]**  
bright drawn / ground, ISO h9  
L: 1,000 mm



**Precision round steel [PRS/BA]**  
peeled / rough-turned  
L: 1,000 mm

## Chemical composition BS BL 3 (reference value %)

C	Si	Mn	P	S	Cr	Mo	Ni
0.95 – 1.1	0.15 – 0.35	0.2 – 0.4	0 – 0.025	0 – 0.025	1.35 – 1.6	0 – 0.1	0 – 0.4

## Physical properties

Hardness (delivery condition)	max. 223 HB, annealed			
Tensile strength $R_m$ (as received condition)	approx. 750 N/mm <sup>2</sup>			
Working hardness	max. 64 HRC			
Thermal expansion coefficient $10^{-6}m/(m \cdot K)$	20 - 100°C	20 - 200°C	20 - 300°C	20 - 400°C
	12.3	13.4	13.7	14.1
Thermal conductivity $W/(m \cdot K)$	20°C	350°C	700°C	
	33.0	32.2	31.4	

## Technical properties

An all purpose medium alloyed cold work tool steel with high hardenability, but low depth of hardening, good wear resistance and toughness. This steel grade belongs to the group of BS BL 1 (roller bearing and ball bearing steel).

## Applications

Drills, threading tools, centre lathes, milling cutters, reamers, small die plates, pressure rollers, cold rollings, measuring tools, cold pilger rollings, cold pilger jaws, gauges, mandrels, woodworking tools, cold extrusion tools, flanging rollers, shear knives, roller bearings, ball bearings (medium to large size).

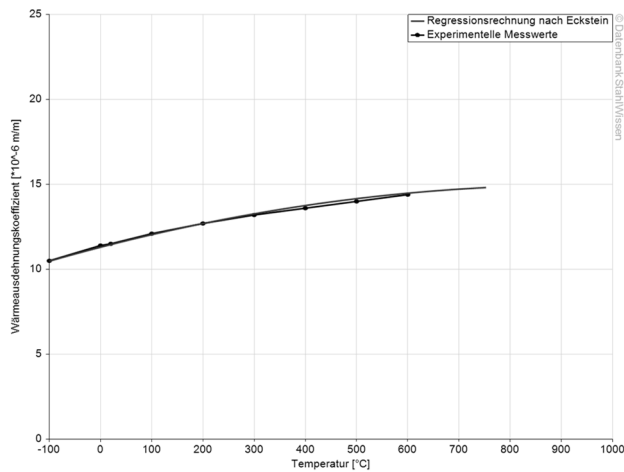


## Heat treatment

	Temperature	Cooling	Hardness			
Soft annealing	710 - 750°C	Furnace	max. 223 HB			
Stress relief annealing	Temperature	Cooling				
	approx. 650 °C	Furnace				
Hardening	Temperature	Quenching in	Hardness after quenching			
	830 - 860 °C	Oil, basin, 180 - 220 °C	64 HRC			
Tempering	100°C	200°C	300°C	400°C	500°C	600°C
	64 HRC	61 HRC	56 HRC	50 HRC	44 HRC	36 HRC

## Thermal expansion coefficient diagram

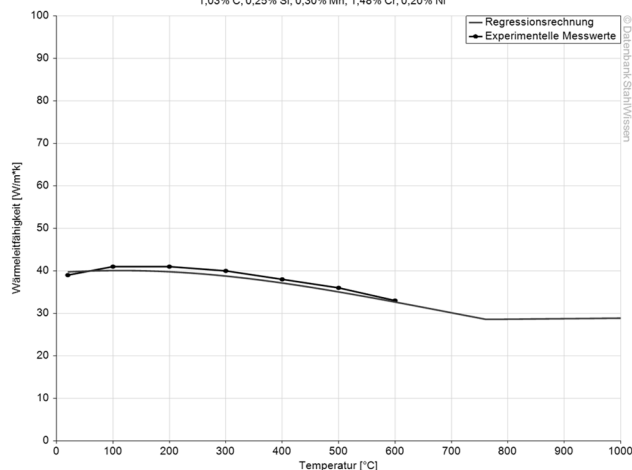
Werkstoff: 102Cr6, 1.2067



## Thermal conductivity diagram

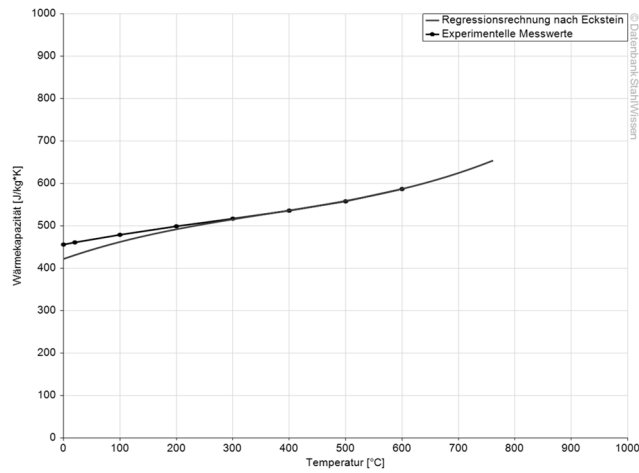
Werkstoff: 102Cr6, 1.2067

Regressionsrechnung mit folgender Analyse:  
1,03% C, 0,25% Si, 0,30% Mn, 1,48% Cr, 0,20% Ni



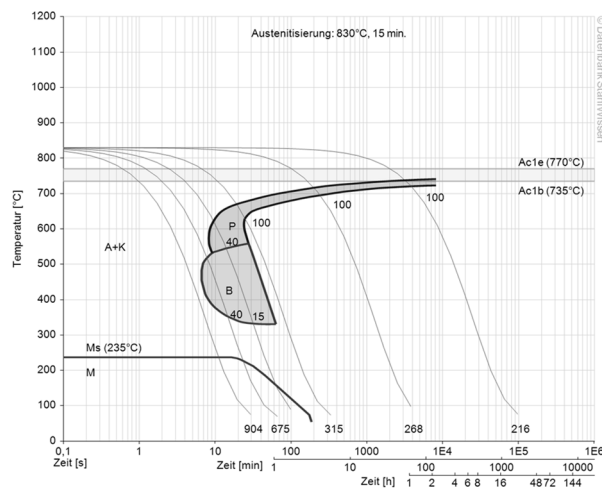
## Thermal capacity diagram

Werkstoff: 102Cr6, 1.2067

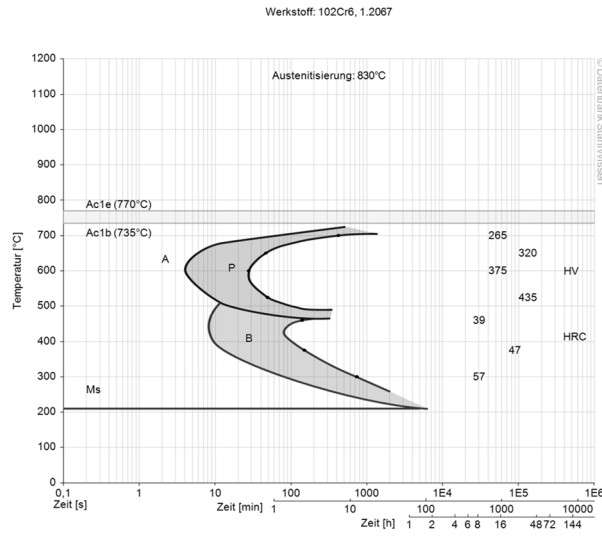


## Continuous ZTU-diagram

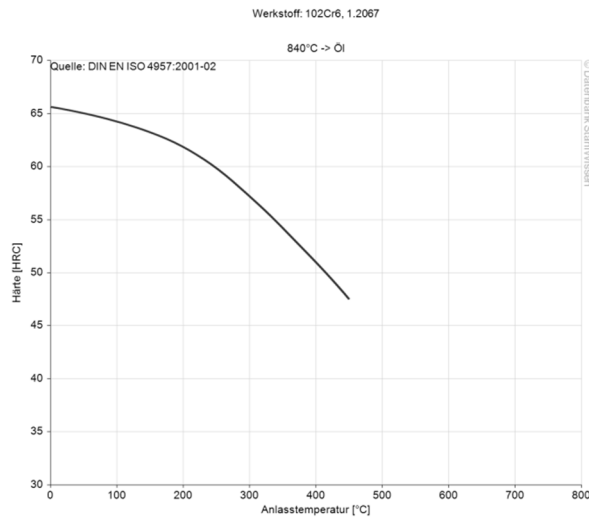
Werkstoff: 102Cr6, 1.2067



## 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

