

## Steel grade

Material No.	PREMIUM H10
AISI	H10; T20810
Search for alternatives in the ABRAMS STEEL GUIDE	<a href="http://www.abrams-steelguide.com/alternatives/H10">www.abrams-steelguide.com/alternatives/H10</a>

## Shapes



**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

## Chemical composition AISI H10 (reference value %)

C	Si	Mn	P	S	Cr	Mo	V
0.28 - 0.35	0.1 - 0.4	0.15 - 0.45	0 - 0.03	0 - 0.02	2.7 - 3.2	2.5 - 3.0	0.4 - 0.7

## Physical properties

Hardness (delivery condition)	max. 229 HB, annealed						
Tensile strength $R_m$ (as received condition)	approx. 111.6 KSI						
Working hardness	max. 52 HRC						
Thermal expansion coefficient $10^{-6}m/(m \cdot K)$	68 - 212°F	68 - 392°F	68 - 572°F	68 - 752°F	68 - 932°F	68 - 1112°F	68 - 1292°F
	11.8	12.5	12.7	13.1	13.5	13.6	13.8
Thermal conductivity $W/(m \cdot K)$	68°F		662°F		1292°F		
	Annealed	32,8	34,5	32,2			
	Tempered	31.4	32.0	29.3			

## Technical properties

Hot work steel with high toughness, heat resistance and tempering resistance. Air-hardening steel grade with good thermal conductivity. Can be cooled with water.

## Applications

Extrusion presses, brass casting, press tools, die inserts, die casting molds, plastic molds, recipient bushes, pressure dies, press mandrels, tube extrusion mandrels, piecer plugs, press dies, block receivers, screw production, nut production, rivet production, bolts production, hot shear knives.

## Heat treatment

	Temperature	Cooling	Hardness						
Soft annealing	1382 - 1472°F	Furnace	max. 229 HB						
	Temperature	Cooling	Hardness after quenching						
Stress relief annealing	1112 - 1202°F	Furnace							
	Temperature	Quenching in	Hardness after quenching						
Hardening	1886 - 1922°F	Oil, hotbasin (932 - 1022°F)	52 HRC						
Tempering	212°F	392°F	572°F	752°F	932°F	1022°F	1112°F	1202°F	1292°F
	51 HRC	50 HRC	50 HRC	50 HRC	52 HRC	50 HRC	47 HRC	40 HRC	34 HRC

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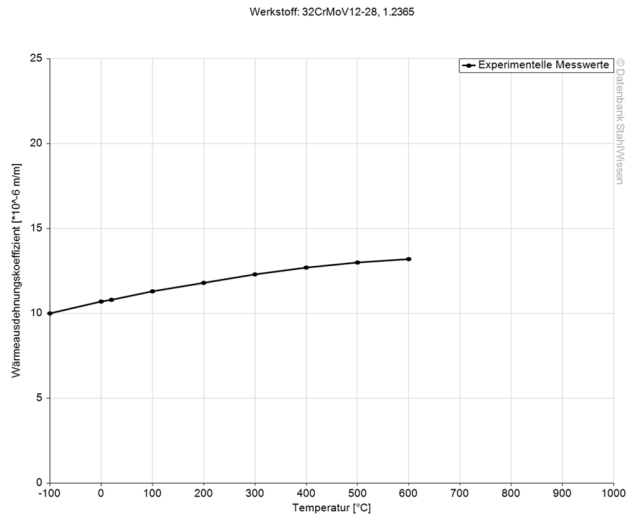
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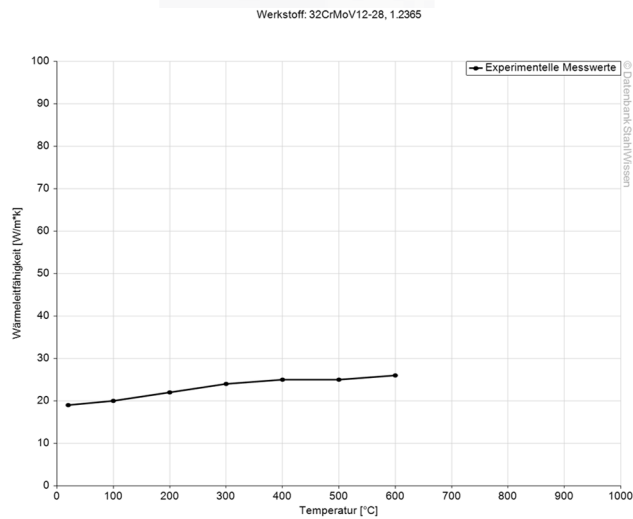
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## Thermal expansion coefficient diagram

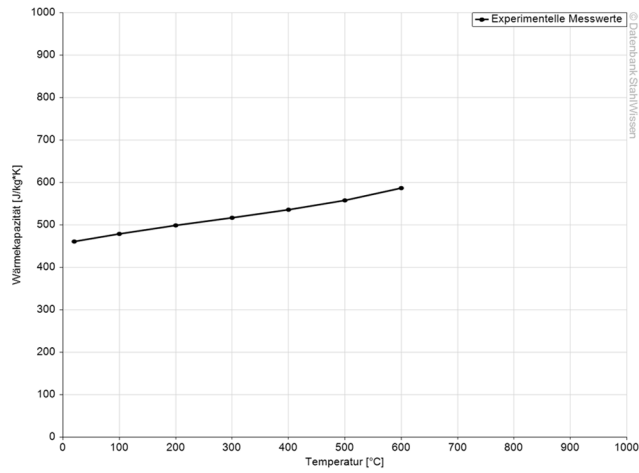


## Thermal conductivity diagram



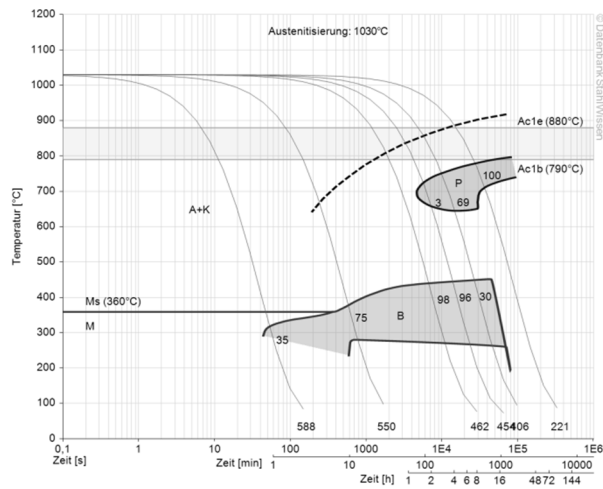
## Thermal capacity diagram

Werkstoff: 32CrMoV12-28, 1.2365

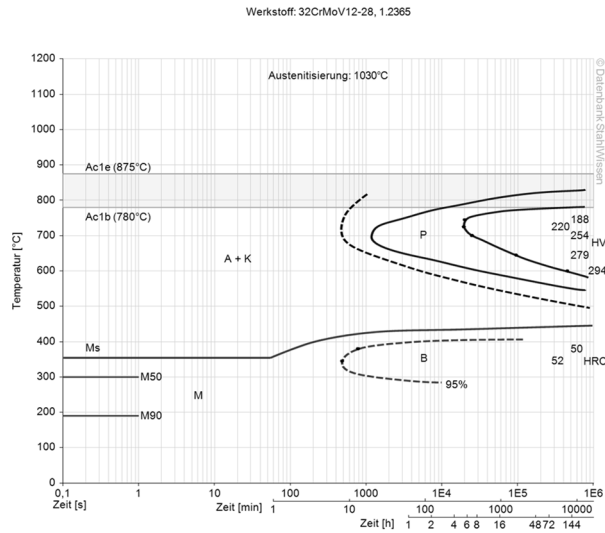


## Continuous ZTU-diagram

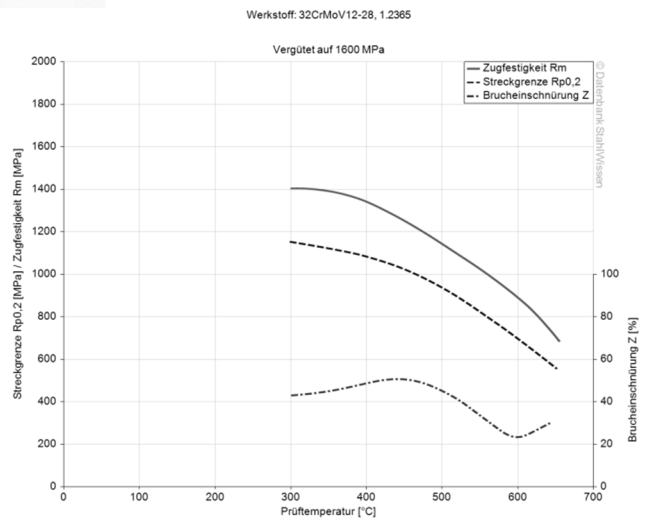
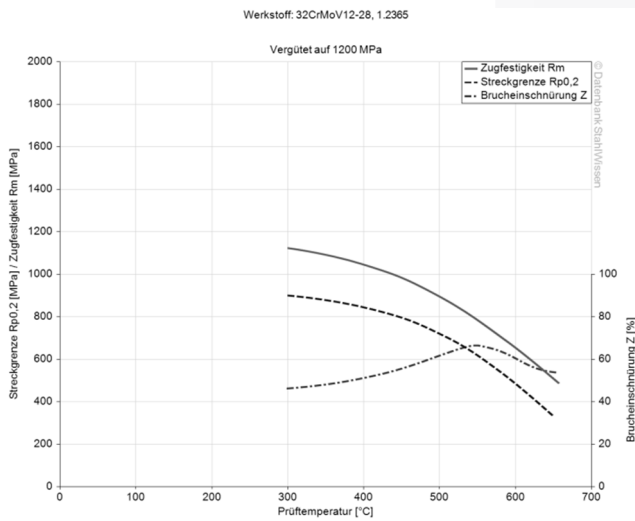
Werkstoff: 32CrMoV12-28, 1.2365



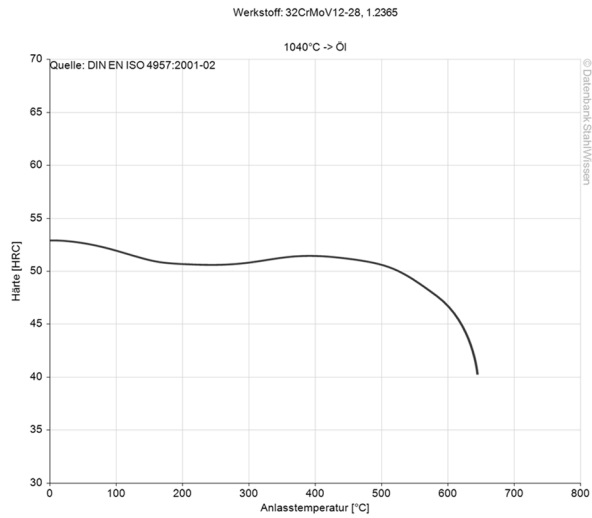
## Isothermal ZTU-diagram



## Hardening and tempering diagrams



## 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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