

## Steel grade

Material No. / Werkstoff-Nr.	PREMIUM 1.2990 mod.
Description	~X100CrMoV8-2
AISI/SAE	1.2990 mod.
Search for alternatives in the ABRAMS STEEL GUIDE®	<a href="http://www.steel-guide.eu/alternatives/1.2990mod">www.steel-guide.eu/alternatives/1.2990mod</a>

## Specifications



€co-Präz\* [€co]  
L: 500 mm



Precision round steel  
with machining allowance [PRS/BA]  
peeled / rough-turned  
L: 500 mm  
L: 1.000 mm

## Chemical composition AISI/SAE 1.2990 mod. (+additives) (reference value %)

C	Cr	Mo	V
1,0 - 1,0	8,0 - 8,0	1,8 - 2,7	0,15 - 0,5

## Physical properties

Hardness (delivery condition)	max. 250 HB, annealed						
Tensile strength $R_m$ (as received condition)	approx. 850 N/mm <sup>2</sup>						
Working hardness	max. 63 HRC						
Thermal expansion coefficient $10^{-6}m/(m \cdot K)$	20 - 100°C	20 - 150°C	20 - 200°C	20 - 300°C	20 - 400°C	20 - 450°C	20 - 500°C
	11,4	11,6	11,7	12,0	12,3	12,4	12,6
Thermal conductivity $W/(m \cdot K)$	RT	100°C	150°C	200°C	300°C	400°C	500°C
	24,0	25,9	26,8	27,1	27,4	27,2	26,8

## Technical properties

An all-rounder amongst the cold work steels: high toughness, good pressure resistance, excellent compression strength, excellent wear and tempering resistance. It is secondary-hardened and has a good dimensional stability, good erosion quality and excellent nitridability.

## Applications

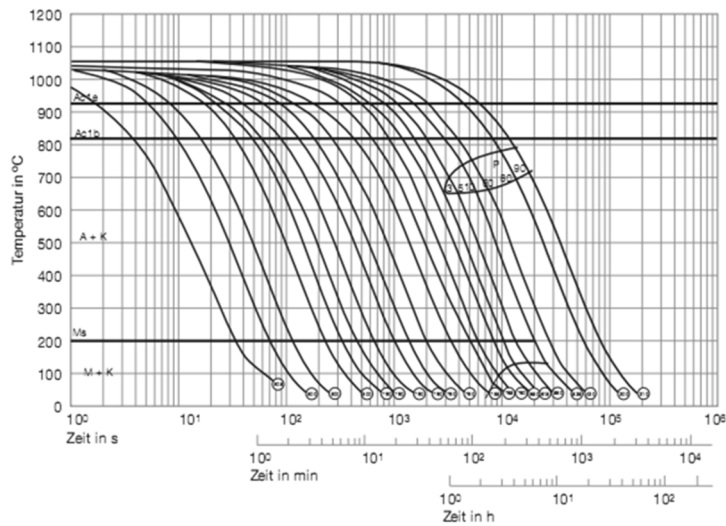
Blanking tools, stamping tools, precision cutting tools, dies, punches, thread rolling tools, cold pilger mandrels, plastic moulds, cold rollings, cold extrusion tools, cold forming tools, deep drawing dies, woodworking tools, embossing tools, bending tools, machine knives, circular shear knives, machine parts.



## Heat treatment

	Temperature	Cooling	Hardness						
Soft annealing	830 - 860°C	Furnace	max. 250 HB						
Stress relief annealing	approx. 650°C	Furnace							
Hardening	1030 - 1080°C	Quenching in Air, oil, hot basin (500 - 550°C)	Hardness after quenching 62 - 64 HRC						
Tempering	100°C	200°C	300°C	400°C	500°C	525°C	550°C	575°C	600°C
1030°C	62 HRC	59 HRC	57 HRC	58 HRC	60 HRC	60 HRC	59 HRC	55 HRC	46 HRC
1080°C	64 HRC	59 HRC	59 HRC	60 HRC	63 HRC	63 HRC	61 HRC	57 HRC	48 HRC

## Continuous ZTU-diagram



## Tempering diagram 1030°C and 1080°C

