

O1 Tool Steel (100MnCrW4)

Medium alloyed cold work steel with good hardening capacity, high wear resistances, dimensionally stable during heat treatment.

Applications: Cutting and punching tools, shear knives, thread rolling tools, measuring instruments.

Colour Code	Stocked Sizes	
 Blue/Green	Condition of Delivery	Soft annealed to max. 230 HB

Related Specifications

	Germany	DIN 1.2510
	USA	AISI O1

Chemical Composition

	%
Carbon	0.95
Manganese	1.10
Chromium	0.60
Tungsten	0.60
Vanadium	0.10

Physical Properties

Thermal expansion coefficient	$\left[\frac{10^{-6} \text{ m}}{\text{m K}} \right]$	20-100°C	20-200°C	20-300°C	20-400°C
		12,0	12,6	13,1	13,5
Thermal conductivity	$\left[\frac{\text{W}}{\text{m K}} \right]$	20°C	350°C		
		33,4	32,1		

Heat Treatment

Soft Annealing

Temperature	Cooling	Hardness
740 - 770°C	furnace	max 230 HB

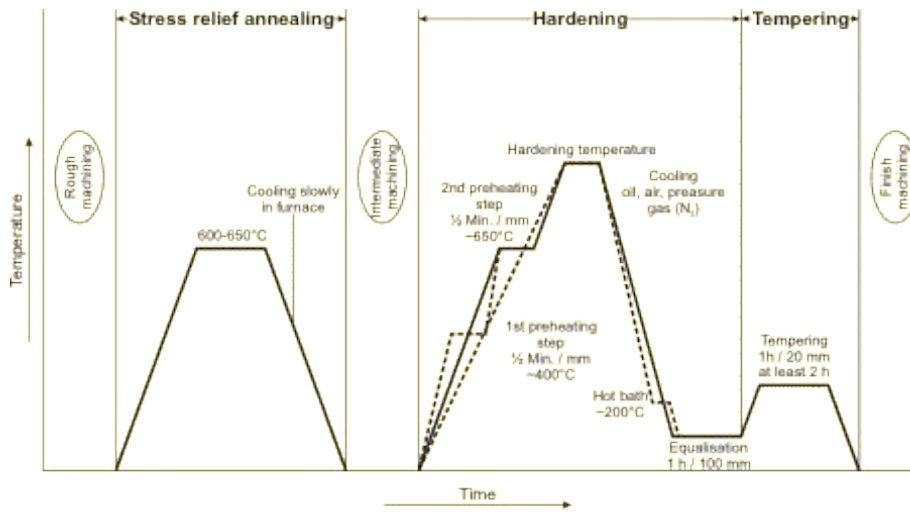
Stress Relief Annealing

Temperature	Cooling
600 - 650°C	furnace

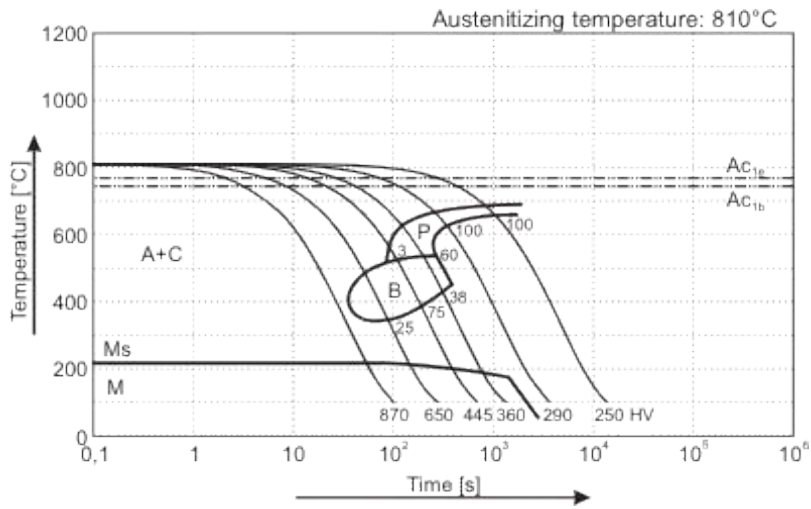
Hardening

Temperature	Cooling	Tempering
790 - 820°C	oil or hot bath 180 - 220°C	see tempering diagram

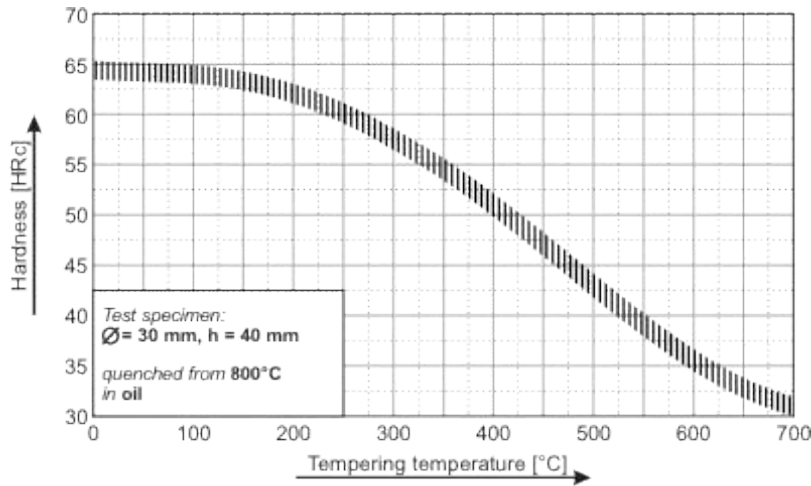
Thermal Cycle Diagram



Continuous Cooling Transformation Diagram (CCT)



Tempering Diagram



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