

Material No.: Code:  
**1.2344 X40CrMoV5-1**

DE - Brand:  
**WP5V**

**Chemical composition:**  
 (Typical analysis in %)

C	Cr	Mo	V				
0,40	5,30	1,40	1,00				

**Steel properties:**

High strength at elevated temperatures, high hot wear resistance, good toughness, thermal conductivity and resistant to hot cracking, limited water cooling possible. Similar to AISI H13.

**Applications:**

Standard material for hot forming tools, extrusion tools, forging dies, pressure casting tools, hot shear knives, tools for plastic industry. Also available in EFS and ESR condition where better properties are required.

**Condition of delivery:**

Soft annealed to max. 229 HB

**Physical properties:**

Thermal expansion coefficient	$\left[ \frac{10^{-6} \text{ m}}{\text{m K}} \right]$	20-100°C	20-300°C	20-500°C	20-700°C
		10,8	12,3	13,0	13,5
Thermal conductivity	$\left[ \frac{\text{W}}{\text{m K}} \right]$	20°C	350°C	700°C	
		25,6	28,4	29,4	

**Heat treatment:**

Soft annealing

Temperature	Cooling	Hardness
750 - 800°C	furnace	max. 229 HB

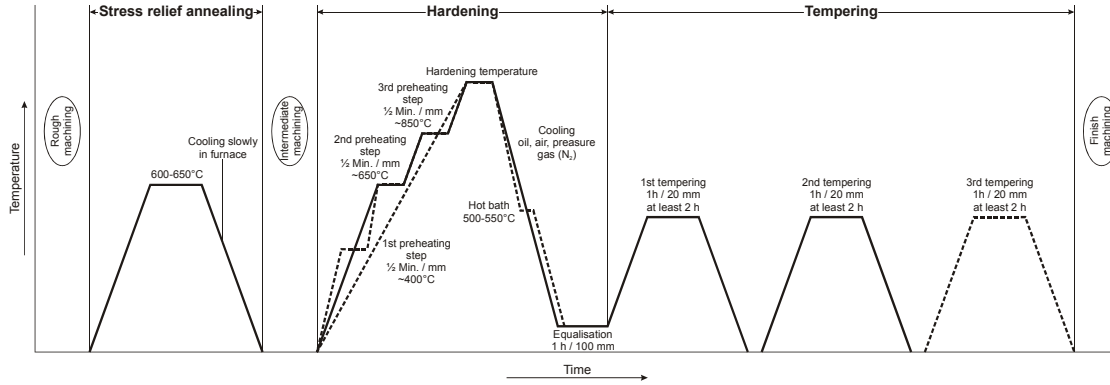
Stress relief annealing

Temperature	Cooling	
600 - 650°C	furnace	

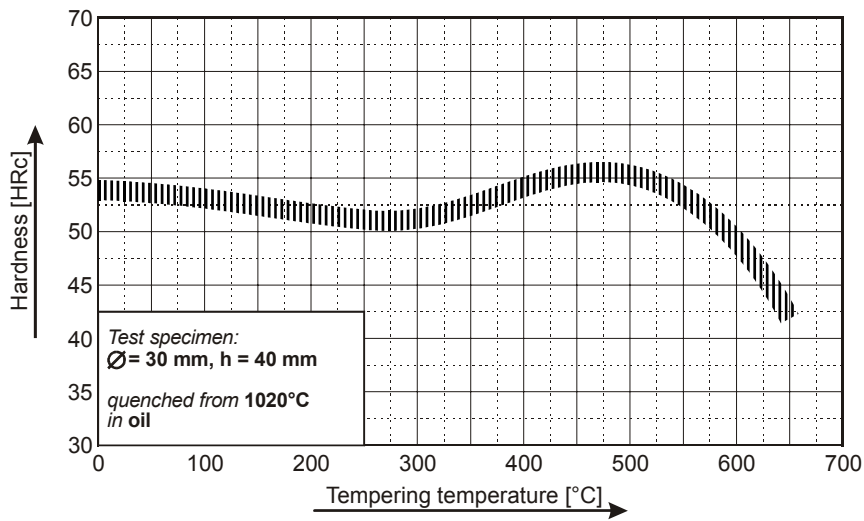
Hardening

Temperature	Cooling	Tempering
1020 - 1060°C	oil, pressure gas (N <sub>2</sub> ), air or hot bath 500 - 550°C	see tempering diagram

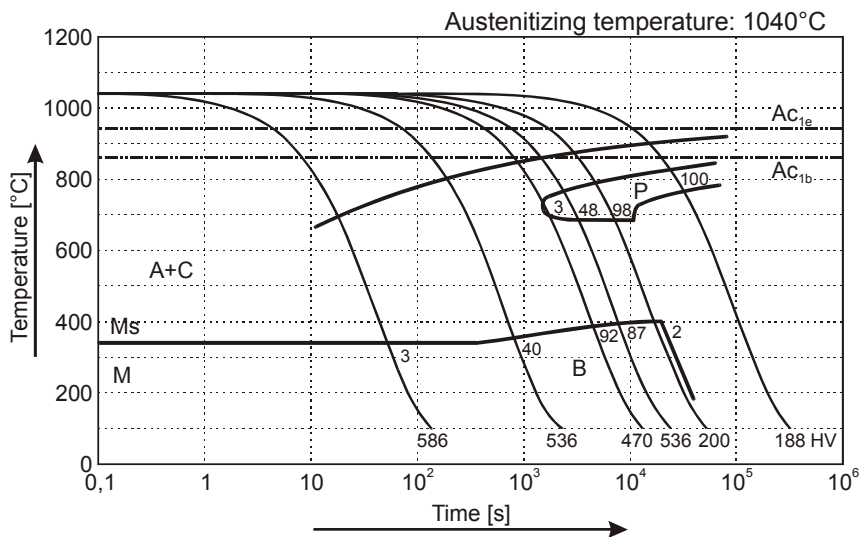
## (1.2344) Thermal Cycle Diagram



## Continuous Cooling Transformation Diagram (CCT)



## Tempering Diagram



Remarks: All technical information is for reference only.