



Material No.: Code:  
**1.2379 X153CrMoV12**

DE - Brand:  
**CPPU**

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

C	Cr	Mo	V				
1,55	12,00	0,80	0,90				

**Steel properties:**

Ledeburitic 12% chrome steel, very high resistance against abrasive and adhesive wear due to a high volume of hard carbides in the steel matrix, good toughness, very good dimensional stability, high compressive strength, very good base material for PVD/CVD coating as well as nitriding due to its secondary hardening properties. Similar to AISI D2.

**Applications:**

Cutting, punching, stamping tools, shear blades, thread rolling dies, cold extrusion dies, drawing and bending tools, flanging and straightening rolls, fine cutting tools, deep drawing tools, plastic moulds for abrasive polymers.

**Condition of delivery:**

Soft annealed to max. 255 HB

**Physical properties:**

Thermal expansion coefficient	$\left[ \frac{10^{-6} \cdot \text{m}}{\text{m} \cdot \text{K}} \right]$	20-100°C	20-200°C	20-300°C	20-400°C
		10,5	11,5	11,9	13,0
Thermal conductivity	$\left[ \frac{\text{W}}{\text{m} \cdot \text{K}} \right]$	20°C	350°C	700°C	
		16,7	20,5	24,2	

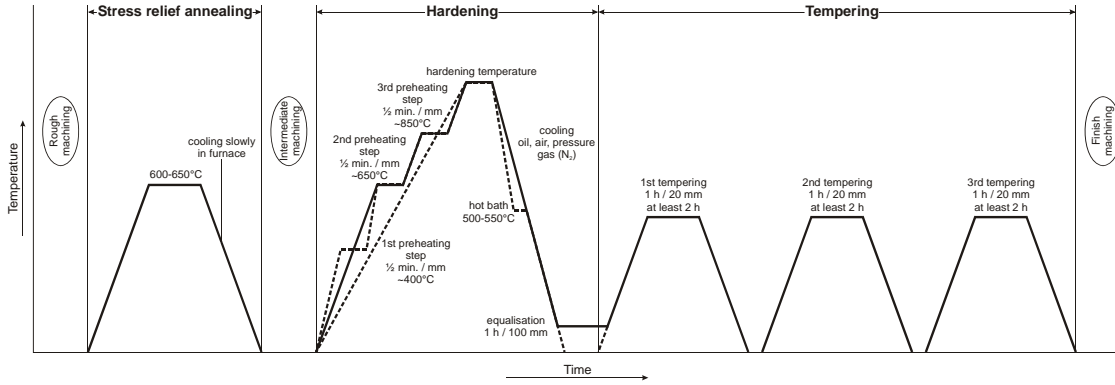
**Heat treatment:**

	Temperature	Cooling	Hardness
Soft annealing	820 - 850°C	furnace	max. 255 HB

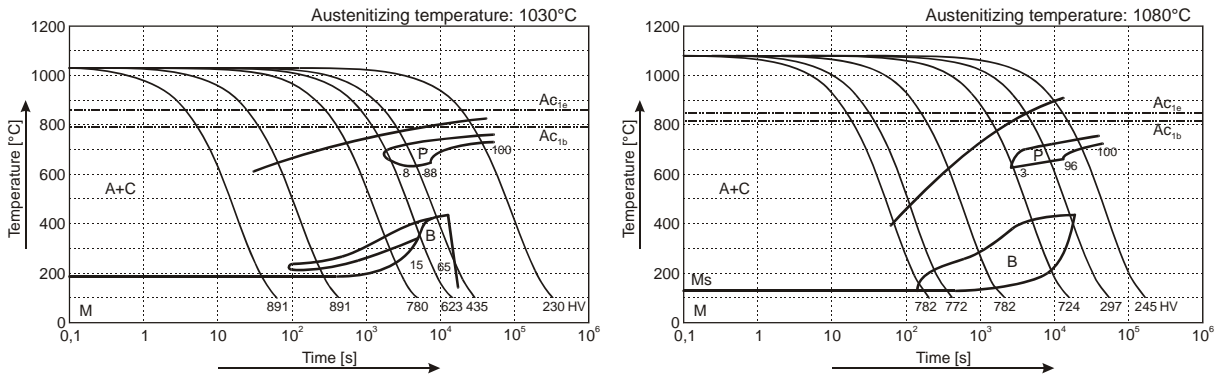
	Temperature	Cooling	
Stress relief annealing	600 - 650°C	furnace	

	Temperature	Cooling	Tempering
Hardening	1000 - 1030°C	oil, pressure gas (N <sub>2</sub> ), air or hot bath 500 - 550°C	see tempering diagram ① usually < 300°C
	1040 - 1080°C	oil, pressure gas (N <sub>2</sub> ), air or hot bath 500 - 550°C	see tempering diagram ② usually > 480°C

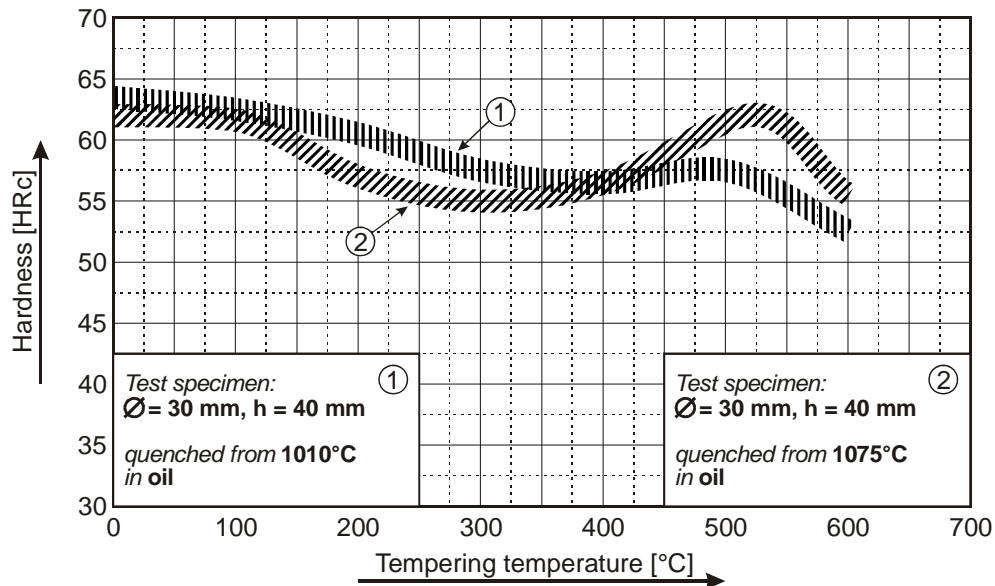
## (1.2379) Thermal Cycle Diagram



## Continuous Cooling Transformation Diagram (CCT)



## Tempering Diagram



Remarks: All technical information is for reference only.