Doerrenberg

Material No.: 1.2367 Code: X38CrMoV5-3 DE - Brand: DM3X

Chemical composition:
(Typical analysis in %)

C	Cr	Mo	V				
0,38	5,00	3,00	0,50				

Steel properties:

Hot work tool steel with good wear resistance at high temperatures, high hardness and tempering strength, depending on the application also available in EFS and ESR.

Applications:

Large die casting tools, tools needing high strength at elevated temperatures, forging dies, mandrels, extrusion dies.

Condition of delivery:

Soft annealed to max. 229 HB

Physical properties:

Thermal expansion coefficient	$\left[\frac{10^{-6}\cdot m}{m \cdot K}\right]$	20-100°C	20-300°C	20-500°C	20-700°C
		11,9	12,6	13,1	13,5
Thermal conductivity	$\left[\frac{W}{m \cdot K}\right]$	20°C	350°C	700°C	
		30,8	33,5	35,1	

Heat treatment:

Soft annealing

Temperature	Cooling	Hardness
730 - 780°C	furnace	max. 229 HB

Stress relief annealing

Temperature	Cooling	
600 - 650°C	furnace	

Hardening

Temperature	Cooling	Tempering
1030 - 1080°C	oil, pressure gas (N_2), air or hot bath 500 - 550°C	see tempering diagram

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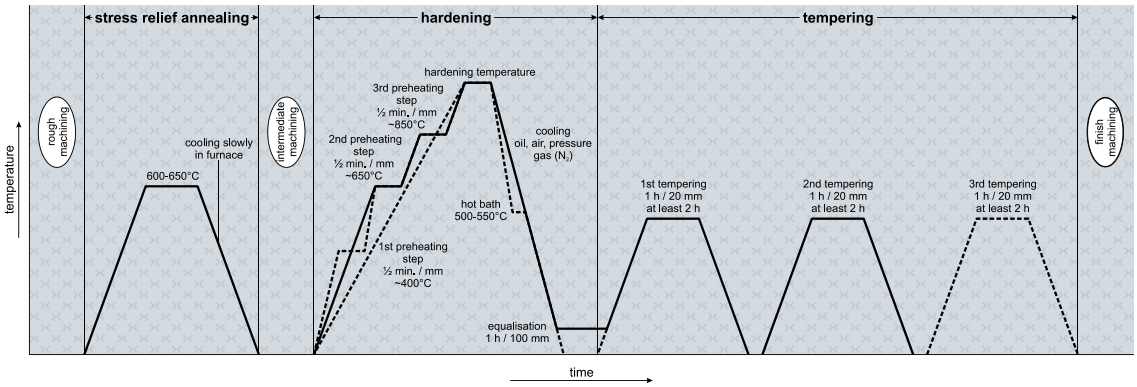
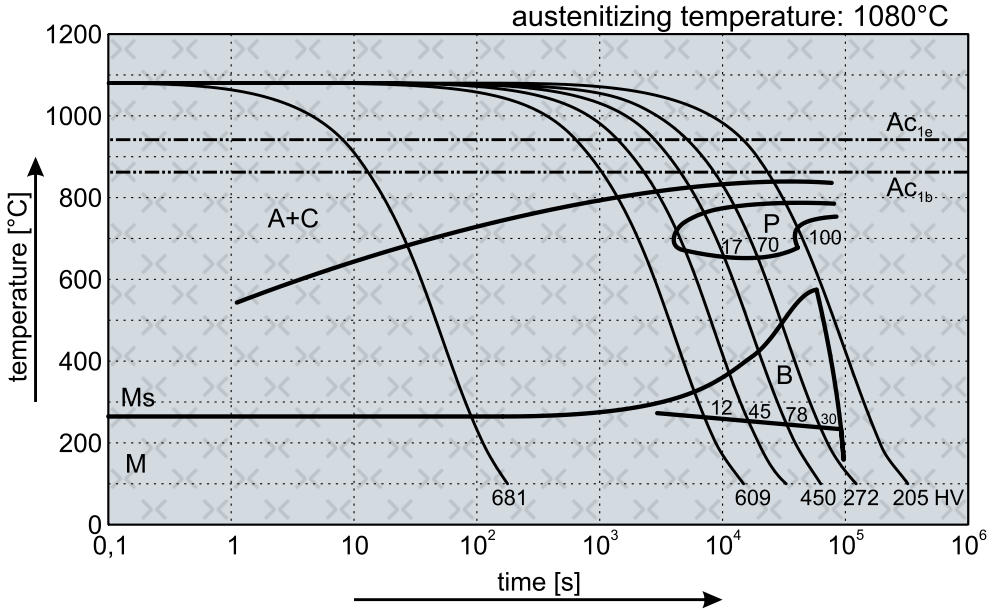
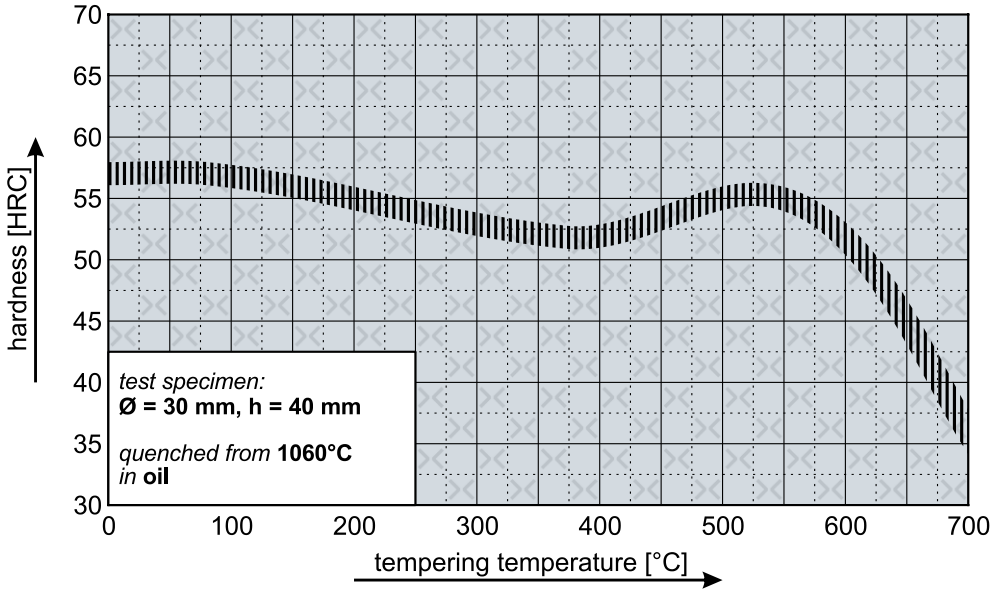
(1.2367) Thermal Cycle Diagram



Continuous Cooling Transformation Diagram (CCT)



Tempering Diagram



Remarks: All technical information is for reference only.