



Material No.: Code:
1.2162 21MnCr5

DE - Brand:
EPM2

Chemical composition:
(Typical analysis in %)

C	Mn	Cr					
0,21	1,30	1,20					

Steel properties:

Case hardening steel, in soft condition suitable for hobbing, good polishability in hardened condition.

Applications:

Machine components with high surface hardness and tough core, plastic moulds, guidepillars.

Condition of delivery:

Soft annealed to max. 217 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
		12,1	12,7	13,3	13,8
Thermal conductivity	$\left[\frac{\text{W}}{\text{m} \cdot \text{K}} \right]$	20°C	350°C	700°C	
		40,0	37,5	33,5	

Heat treatment:

Soft annealing

Temperature	Cooling	Hardness
670 - 710°C	furnace	max. 217 HB

Stress relief annealing

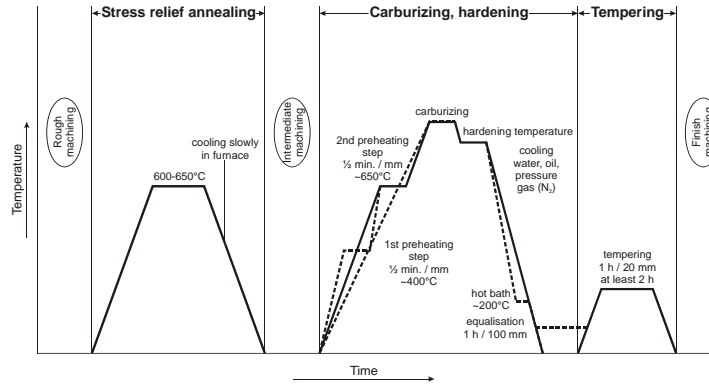
Temperature	Cooling	
600 - 650°C	furnace	

Hardening

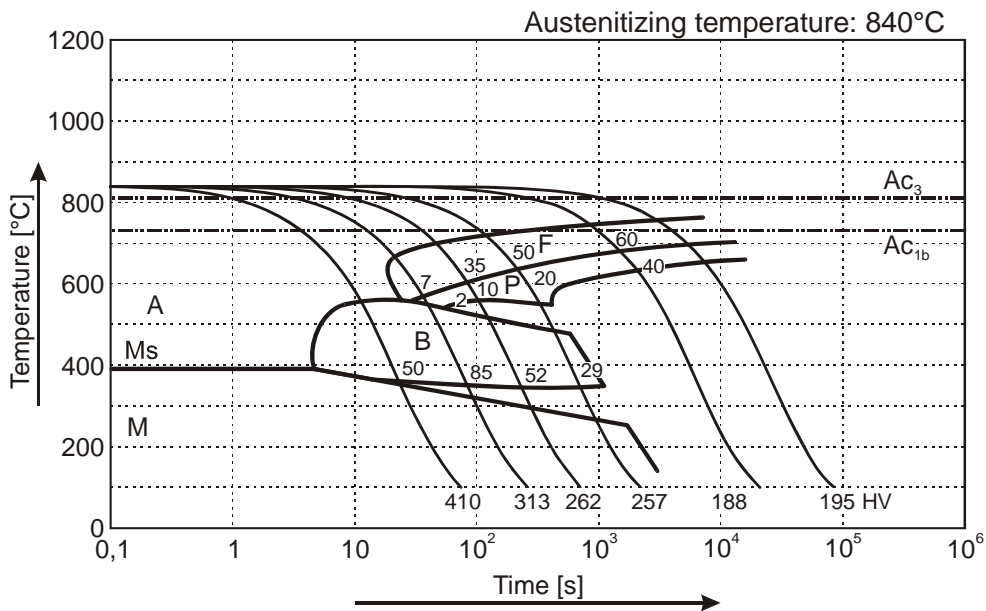
Carburizing	Intermediate annealing	Austenitizing temperature	Cooling	Tempering
870 - 950°C	620 - 650°C	810 - 840°C	oil or hot bath 180 - 220°C	see tempering diagram

(1.2162) Thermal Cycle Diagram

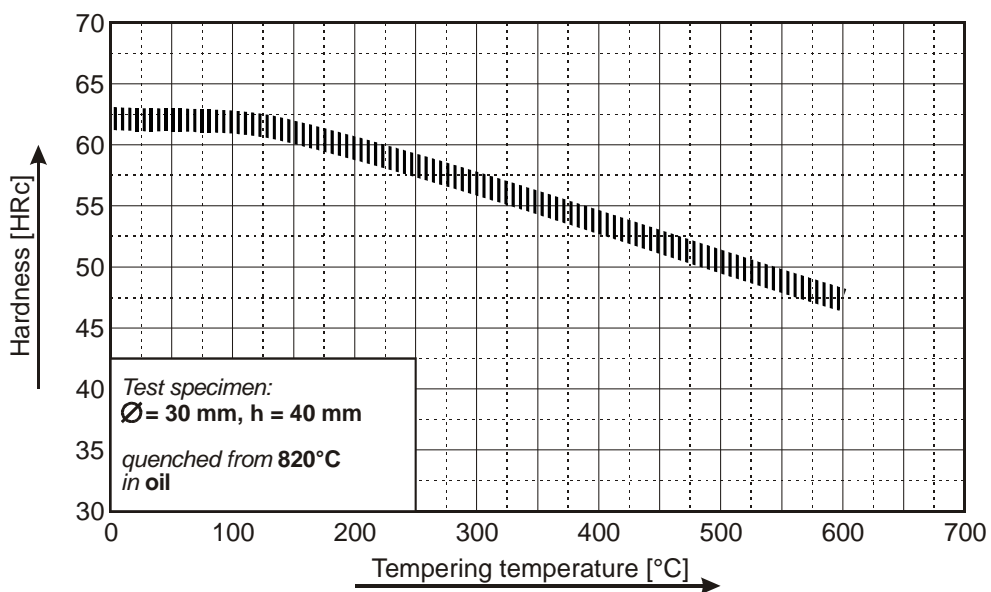
In certain cases intermediate annealing or isotherm transformation may be useful depending on the tool or component. Please contact us.



Continuous Cooling Transformation Diagram (CCT) (core area)



Tempering Diagram (for carburized surface)



Remarks: All technical information is for reference only.