

Material No.: Code:
1.7225 42CrMo4

DE - Brand:
M4S

Chemical composition:
 (Typical analysis in %)

C	Cr	Mo					
0,42	1,10	0,25					

Steel properties:

CrMo-alloyed steel, engineering steel supplied in hardened and tempered conditions. Good machinability.

Applications:

Components with high requirements on toughness, e.g. gear wheels, pinions, connecting rods, parts for mechanical engineering.

Condition of delivery:

Quenched and tempered

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	13,2	13,6
Thermal conductivity	$\left[\frac{\text{W}}{\text{m} \cdot \text{K}} \right]$	20°C			
		45,1			

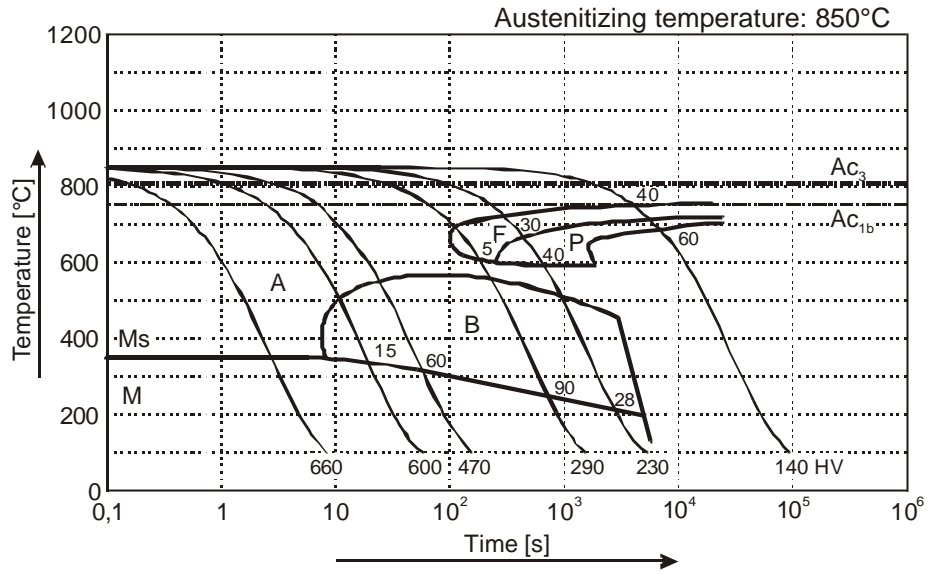
Heat treatment:

Soft annealing	Temperature	Cooling	Hardness
	680 - 720°C	furnace	max. 241 HB
Normalizing	Temperature	Cooling	
	850 - 880°C	air	
Hardening	Temperature	Cooling	Tempering
	820 - 860°C	oil, water	see tempering diagram

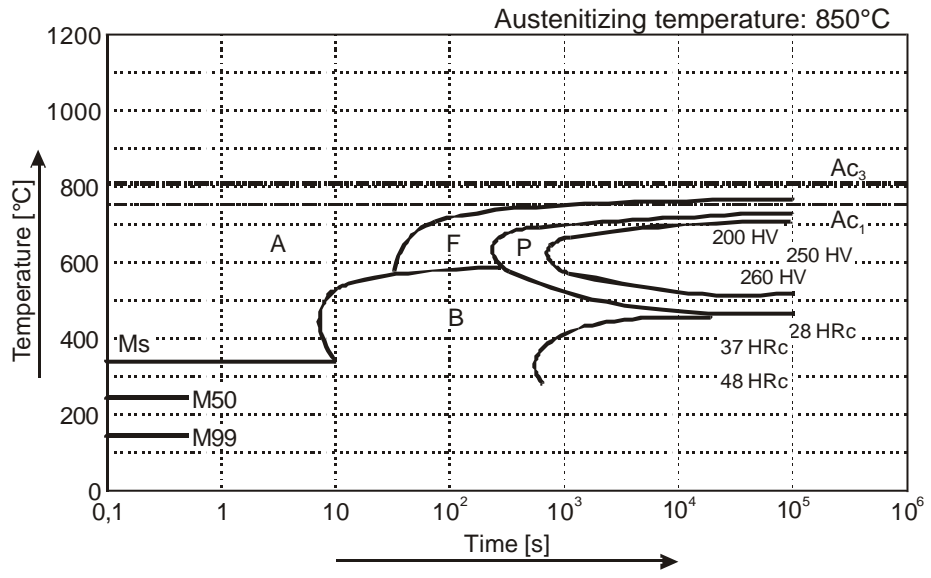
Mechanical properties in quenched and tempered condition (DIN EN 10083-1, 10/96)

Diameter [mm]	< 16	>16 - 40	>40 - 100	>100 - 160	>160 - 250
Thickness t [mm]	< 8	8<t<20	20<t<60	60<t<100	100<t<160
Yield strength Re [N/mm²]	min. 900	min. 750	min. 650	min. 550	min. 500
Tensile strength Rm [N/mm²]	1100 - 1300	1000 - 1200	900 - 1100	800 - 950	750 - 900
Elongation A [%]	min. 10	min. 11	min. 12	min. 13	min. 14
Reduction of area Z [%]	min. 40	Min. 45	min. 50	min. 50	min. 55
Toughness CVN [J]	min. 30	min. 35	min. 35	min. 35	min. 35

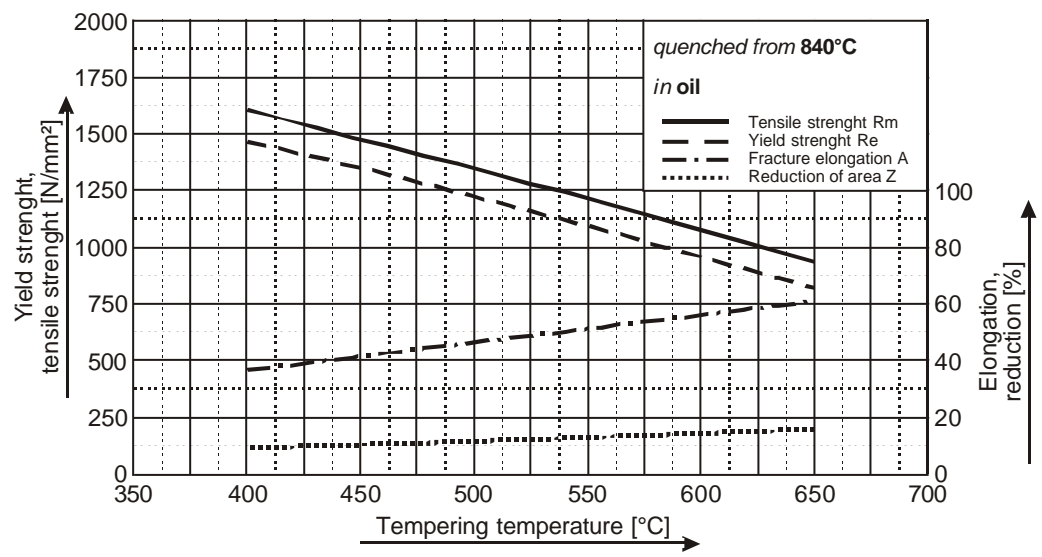
(1.7225) Continuous Cooling Transformation Diagram (CCT)



Time Temperature Transformation Diagram (TTT)



Tempering Diagram



Remarks: All technical information is for reference only.