

AISI D3 HCHCR-D3 DIN 2080

X210Cr12

C 2.00 Si 0.40 Mn 0.30 Cr 11.50

Steel properties

D3 having properties of High Carbon 2% and High chromium tool steel with high wear resistance. Its supply condition is normally annealed to easy machining which recommended hardness is 57-58 HRC after making the dies & tools.

Standards

AISI D3 AFNOR Z200C12

Physical properties

Coefficient of thermal expansion at °C	20 – 100	20 – 200	20 – 300	20 – 400	20 – 500	20 – 600	20 – 700
$10^{-6} \text{ m/(m} \cdot \text{K)}$	10.7	11.6	12.3	12.6	12.9	13.2	13.3
Thermal conductivity at °C							
$\text{W/(m} \cdot \text{K)}$	20	350		700		24.3	

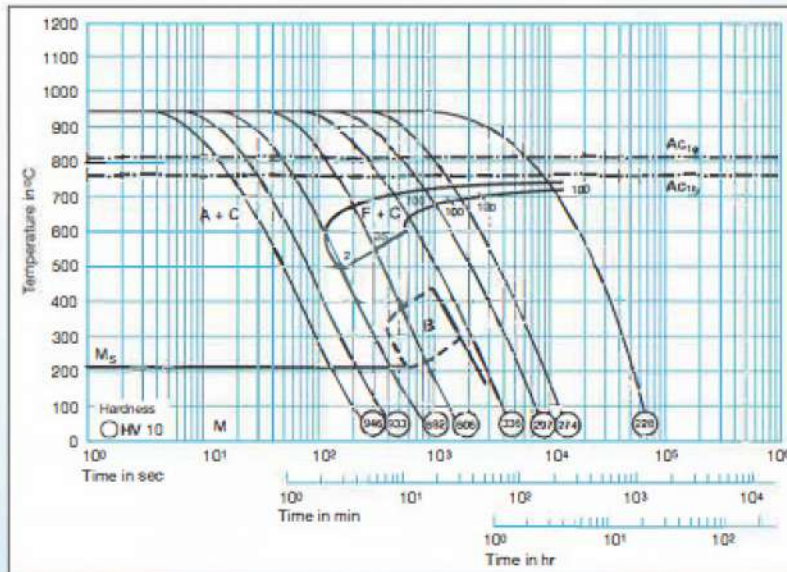
Applications

D3 is used in cold Dies & tooling application that required the achievement of high degree of accuracy in hardening & tempering, such as dies drawing, forming cold rolls, powder metal tooling and blanking and trimming dies, blanking dies for paper and plastics, shear blades, cold die punches, Ejector pins etc.

Heat treatment

Soft annealing °C	Cooling	Hardness HB
810 – 850	Furnace	max. 248
Stress-relief annealing °C	Cooling	
approx. 670 – 720	Furnace	
Hardening °C	Quenching	Hardness after quenching HRC
940 – 970	Oil	64.5
950 – 980	Air (up to 30 mm thickness)	64.5
Tempering °C		
HRC	100 200 300 400 500 600	63.5 61.5 58 57.5 55 47

Time-temperature-transformation diagram



Tempering diagram

