

**Corrispondenze**  
Comparable standards

SIAU	DIN	W.N.	AFNOR	BS	AISI/SAE
YZ	20MnCr5	1.7147	20MC5	-	-

**Composizione**  
Chemical analysis

C	Mn	Si	Cr	Ni	Mo	P e S
.17 ÷ .22	1.10 ÷ 1.40	.15 ÷ .40	1.00 ÷ 1.30	-	-	≤ .035

**Temperature per la lavorazione a caldo ed il trattamento termico**  
Hot work and heat treatment temperatures

Punti critici Critical point	Fucinatura Forging	Normalizzazione Normalization	Ricottura subcritica Subcritical annealing	Ricottura isoterma Isothermal annealing	Tempra/Hardening 1° 2°	Rinvenimento di distensione Stress relieving
Ac1 730					850÷880	
Ac3 830	1100÷900	850÷880	650÷700	860÷920	810÷840	160÷200
Ms 390				↓ 650x1h		
Ms 200					olio / oil	

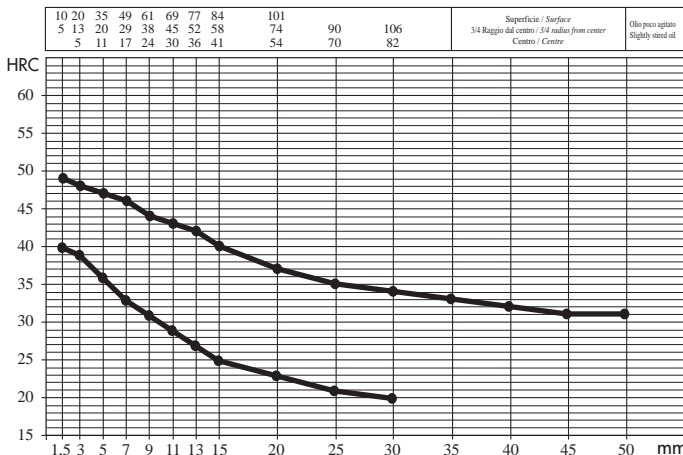
**Caratteristiche meccaniche / Mechanicals properties**

Stato Conditions	Saggio/Specimen Ø mm.	Re min. N/mm2	Rm N/mm2	A min. %	KCU min. J	Durezza HB allo stato HB hardness in the following conditions
Temprato e disteso Hardened and stress relieved	11	930	1230÷1570	7	17,5	Ricotto lavorabile / Soft-annealed ≤ 220
	30	690	930÷1230	8	20	Ricotto isoterma/Isothermal annealed 150÷207
	63	540	780÷1080	9	25	Ricotto sferoidale/Spheroidal annealed ≤ 185

**Temprabilità**  
Hardenability

HRC / % Martensite		Diametro temprabile mm./Hardenable diameter mm.	
90%	70%	olio/oil	acqua/water
44	35	40	-

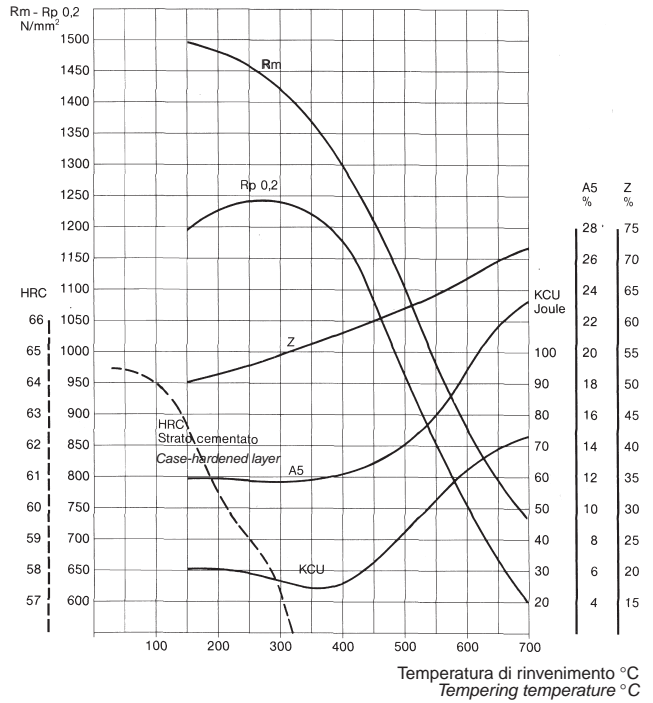
**Temprabilità Jominy**  
Jominy hardenability



Distanza dall'estremità temprata Distance from quenched end	Durezza Rockwell Rockwell hardness	
mm.	HRc min	HRc max
1,5	40	49
3	39	48
5	36	47
7	33	46
9	31	44
11	29	43
13	27	42
15	25	40
20	23	37
25	21	35
30	20	34
35		33
40		32
45		31
50		31

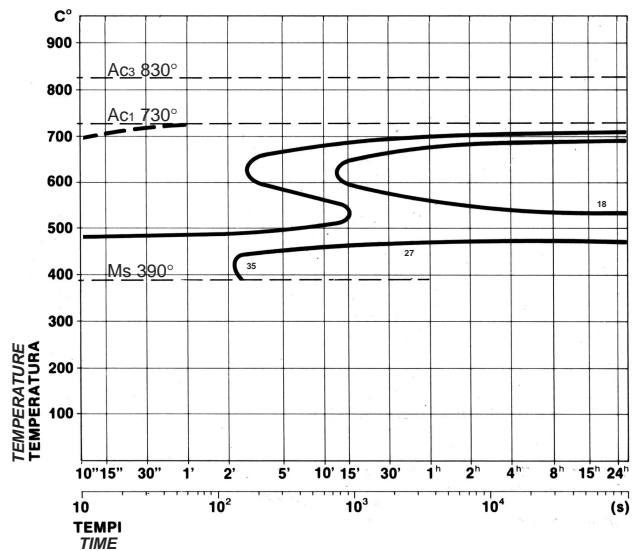
# 20MnCr5

## Diagramma di rinvenimento Tempering curve



Treatment: on Ø 11 mm    Tempra: 870 °C olio    Rinvenimento per 2 ore  
Treatment: on Ø 11 mm    Hardening: 870 °C oil    Tempering for 2 hours

## Diagramma T.T.T. T.T.T. diagram



Saggio: Ø 8    Austenitizzazione: 850 °C per 1/2 ora  
Test block: Ø 8    Austenitizing: 870° for 1/2 hour