

RIFERIMENTI NORMATIVI

UNI	AFNOR	DIN-W.Nr.	BS	AISI-SAE
39NiCrMo3	40NCD3	1.6510	-	-

COMPOSIZIONE CHIMICA INDICATIVA [%]

Elemento	C	Mn	Si	Cr	Ni	Mo	S
Intervallo [%]	0.35 – 0.45	0.50 – 0.80	≤ 0.4	0.6 – 0.1	0.70 – 1.0	0.15 – 0.30	≤ 0.035

LAVORAZIONE A CALDO E TRATTAMENTO TERMICO

Punti critici: Ac1 740 °C, Ac3 790 °C, Ms 330 °C

Operazione	Fucinatura	Normalizzazione	Ricottura subcritica	Ric. sferoidale	Tempra	Rinvenimento
Parametro	1100 - 900	850 - 880	650 - 700	810 - 880	830 - 860	550 - 650

CARATTERISTICHE MECCANICHE

Stato	Saggio Ø [mm]	Re min. [N/mm²]	Rm [N/mm²]	A min. [%]	KCU min. [J]	Durezza HB allo stato
Bonificato	≤16	835	1030 – 1180	10	40	Ricottura subcritica ≤ 240
	≤40	785	980 – 1180	11	40	Ricottura completa ≤ 235
	≤100	685	880 - 1080	12	45	Ricottura isometrica 195-240

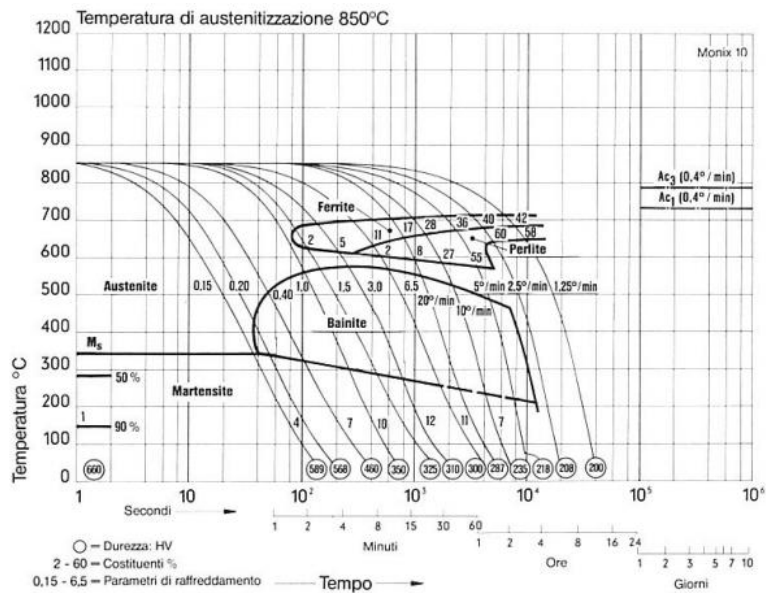
IMPIEGHI utilizzato per componenti meccanici sottoposti a sollecitazioni dinamiche e fatica, come alberi di trasmissione, ingranaggi, tiranti e organi strutturali

JOMINY

Distanza dall'estremità temperata	Durezza rockwell	
mm	HRC min	HRC max
1.5		60
3		60
5		59
7		58
9		58
11		57
13		57
15		56
20		55
25		52
30		51
35		49
40		48



CURVA CCT



CURVA TTT

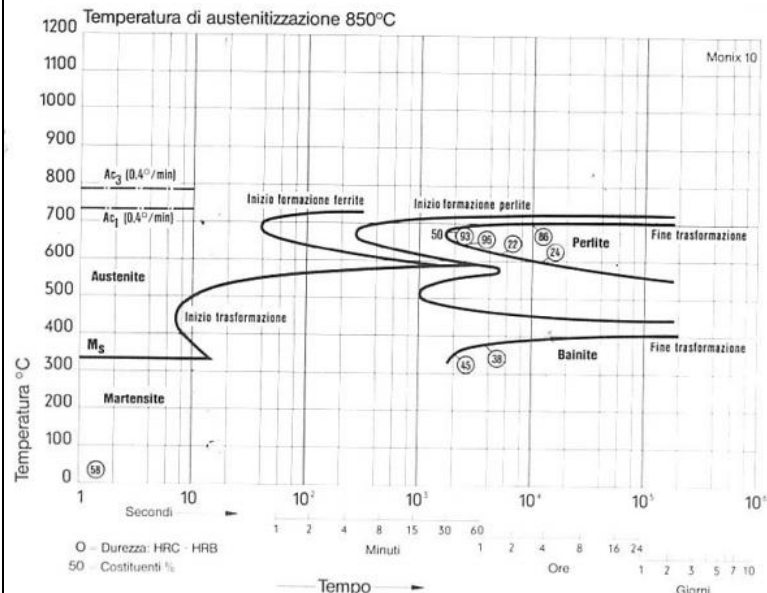


DIAGRAMMA DI RINVENIMENTO

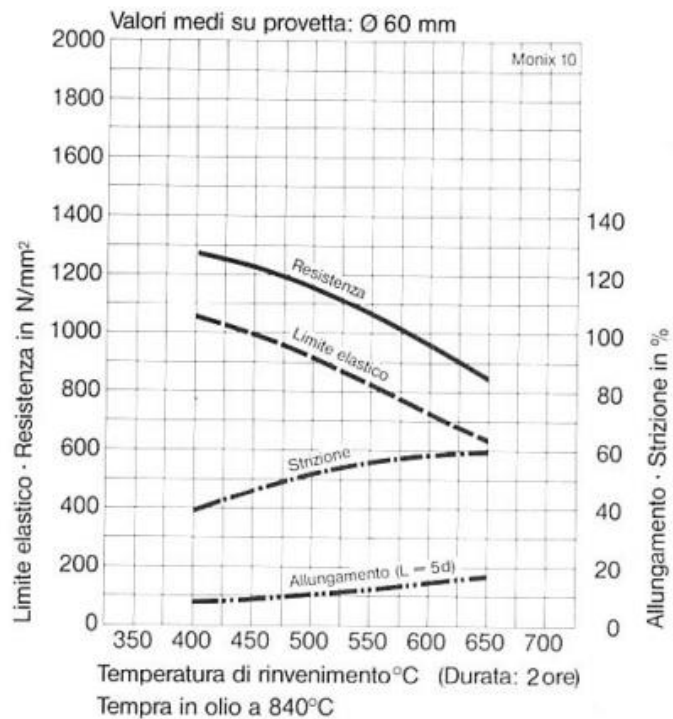
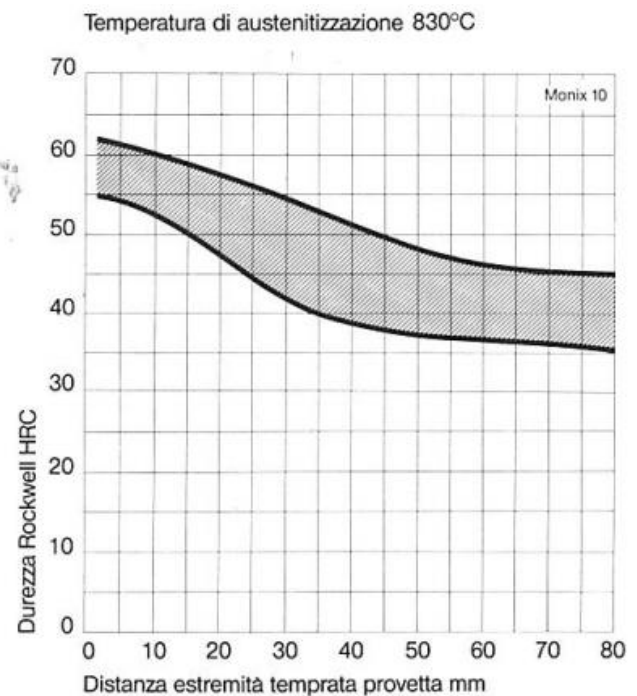


DIAGRAMMA DUREZZA



Tempered steel • UNI 7845 e UNI7874

REFERENCES

UNI	AFNOR	DIN-W.Nr.	BS	AISI-SAE
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CHEMICAL COMPOSITION

Element	C	Mn	Si	Cr	Ni	Mo	S
Interval [%]	0.35 – 0.45	0.50 – 0.80	≤ 0.4	0.6 – 0.1	0.70 – 1.0	0.15 – 0.30	≤ 0.035

HOT WORKING AND HEAT TREATMENT

Critical points: Ac1 740 °C, Ac3 790 °C, Ms 330 °C

Operation	Forging	Normalizing	Subcritical annealing	Spheroidal annealing	Tempering	Quenching
Parameter	1100 - 900	850 - 880	650 - 700	810 - 880	830 - 860	550 - 650

MECHANICAL PROPERTIES

Status	Size Ø [mm]	Re min. [N/mm²]	Rm [N/mm²]	E min. [%]	KCU min. [J]	HB hardness
Q+T Quenched and Tempered	≤16	835	1030 – 1180	10	40	Subcritical annealing ≤ 240
	≤40	785	980 – 1180	11	40	Complete annealing ≤ 235
	≤100	685	880 - 1080	12	45	Isometric annealing 195 - 240

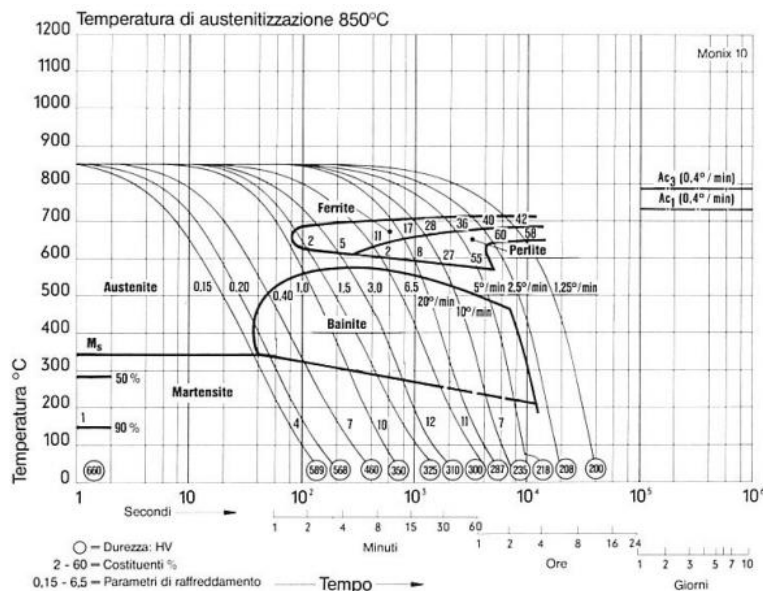
USES used for mechanical components subjected to dynamic stress and fatigue, such as drive shafts, gears, tie rods and structural members

JOMINY

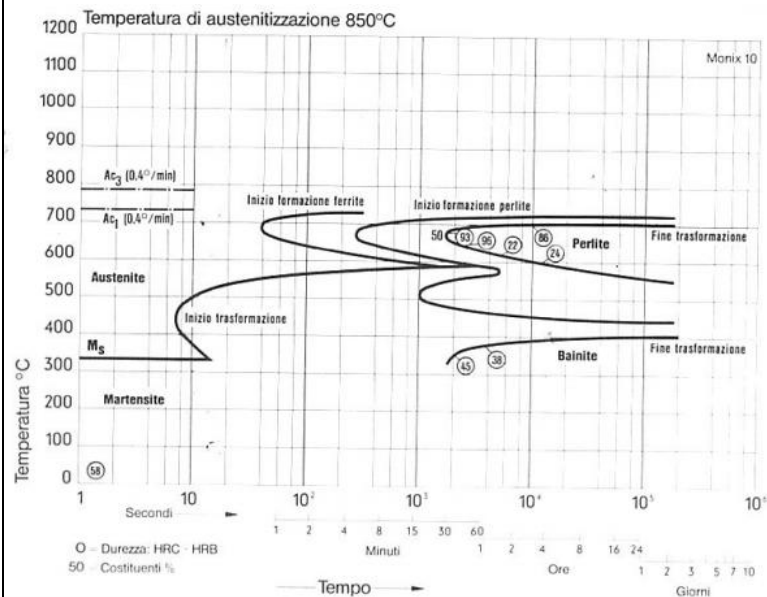
Depth of quenching	Rockwell hardness	
mm	HRc min	HRc max
1.5		60
3		60
5		59
7		58
9		58
11		57
13		57
15		56
20		55
25		52
30		51
35		49
40		48



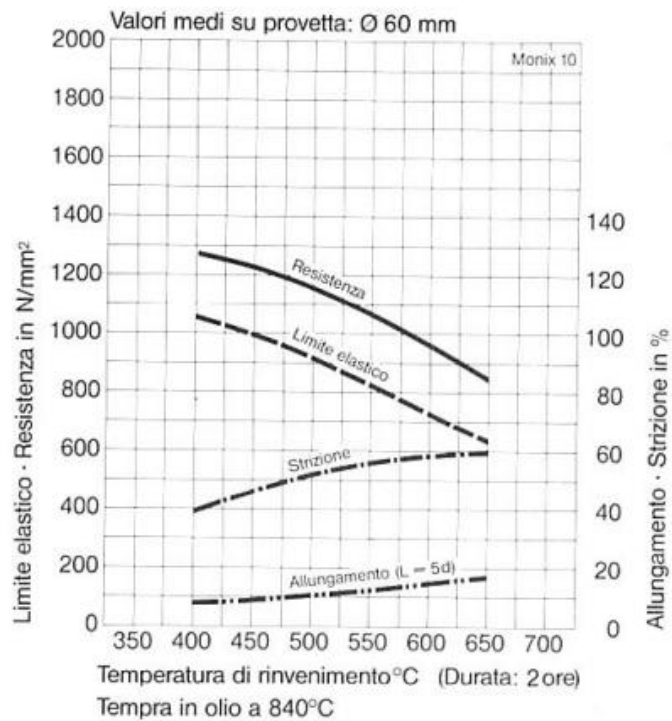
CCT TREND



TTT TREND



TEMPERING DIAGRAM



HARDENABILITY DIAGRAM

