



### Corrispondenze Comparable standards

| SIAU | DIN     | W.N.   | AFNOR | BS       | AISI/SAE |
|------|---------|--------|-------|----------|----------|
| UM8  | 42CrMo4 | 1.7225 | 42CD4 | (708A42) | (4140)   |

### Composizione Chemical analysis

| C       | Mn      | Si      | Cr       | Ni | Mo      | P e S  |
|---------|---------|---------|----------|----|---------|--------|
| .38±.45 | .60±.90 | .15±.40 | .90±.120 | -  | .15±.25 | ≤ .035 |

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

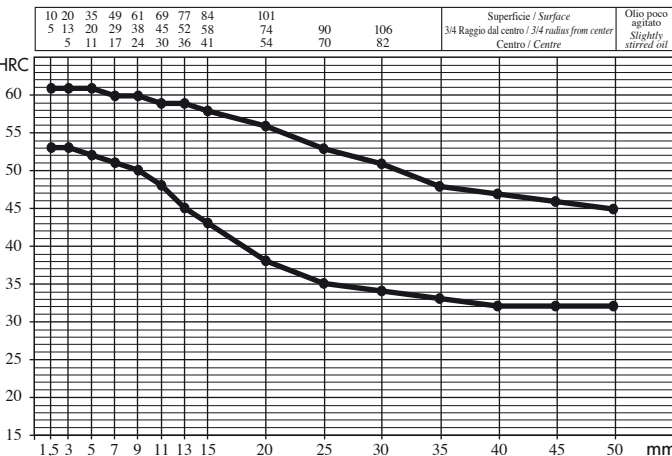
| Punti critici<br>Critical points | Fucinatura<br>Forging | Normalizzazione<br>Normalization | Ricottura subcritica<br>Subcritical annealing | Ricottura isotermica<br>Isothermal annealing | Tempra<br>Hardening | Rinvenimento<br>Tempering |
|----------------------------------|-----------------------|----------------------------------|---|--|---------------------|---------------------------|
| Ac1 745                          |                       |                                  |   | 850÷900                                      | 830÷860             |                           |
| Ac3 790                          | 1100÷900              | 860÷880                          | 680÷720                                       | ↓  |                     | 550÷650                   |
| Ms 300                           |                       |                                  |   | 670x3h                                       | olio / oil          |                           |

### Caratteristiche meccaniche / Mechanical properties

| Stato<br>Condition                        | Saggio Ø mm.<br>Specimen Ø mm. | Re min.<br>N/mm <sup>2</sup> | Rm<br>N/mm <sup>2</sup> | A min.<br>% | KCU min.<br>J | Durezza HB allo stato<br>HB hardness in the following conditions |
|---|--------------------------------|------------------------------|-------------------------|-------------|---------------|--|
| Bonificato<br>Hardened<br>and<br>tempered | ≤ 16                           | 835                          | 1030÷1230               | 10          | 25            | Ricotto lavorabile / Soft-annealed ≤ 245                         |
|   | ≤ 40                           | 735                          | 930÷1130                | 10          | 25            | Ricotto isotermico / Isothermal annealed 185÷240                 |
|   | ≤ 100                          | 635                          | 830÷1030                | 11          | 25            | Ricotto sferoidale / Spheroidal annealed ≤ 195                   |
|   | ≤ 160                          | 560                          | 780÷930                 | 13          | 25            |  |
|   | ≤ 250                          | 510                          | 740÷880                 | 13          | 25            |  |

### Temprabilità Hardenability

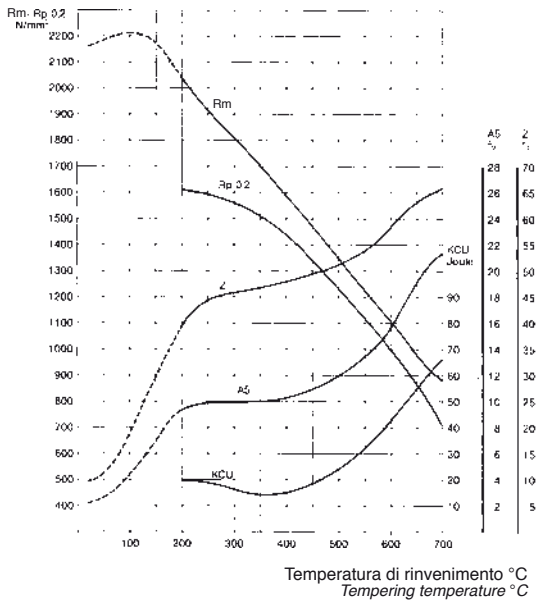
| HRC / % Martensite | Diametro temprabile mm. / Hardenable diameter mm. |
|--------------------|---|
| 90%                | 50%   |
| olio / oil         | acqua / water                                     |
| 53                 | 43  |
|                    | 80  |
|                    | 110   |



### Temprabilità Jominy Jominy hardenability

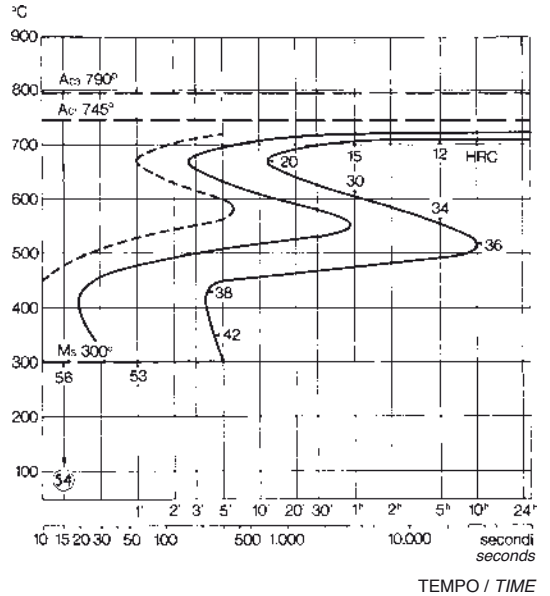
| Distanza dall'estremità temprata<br>Distance from quenched end | Durezza Rockwell<br>Rockwell hardness |         |
|--|---------------------------------------|---------|
| mm.  | HRc min                               | HRc max |
| 1,5  | 53                                    | 61      |
| 3  | 53                                    | 61      |
| 5  | 52                                    | 61      |
| 7  | 51                                    | 60      |
| 9  | 50                                    | 60      |
| 11   | 48                                    | 59      |
| 13   | 45                                    | 59      |
| 15   | 43                                    | 58      |
| 20   | 38                                    | 56      |
| 25   | 35                                    | 53      |
| 30   | 34                                    | 51      |
| 35   | 33                                    | 48      |
| 40   | 32                                    | 47      |
| 45   | 32                                    | 46      |
| 50   | 32                                    | 45      |

## Diagramma di Rinvenimento Tempering curve



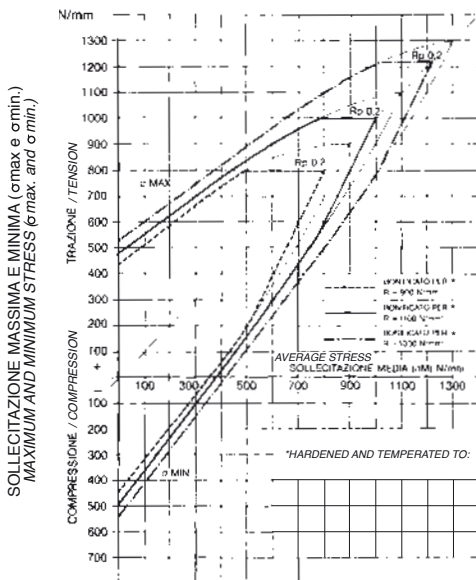
Tratt.: su Ø 11 mm    Tempra: 850 °C olio    Rinv. per 2 ore  
 Treatment: on Ø 11 mm    Hardening: 850 °C oil    Tempering for 2 hours

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



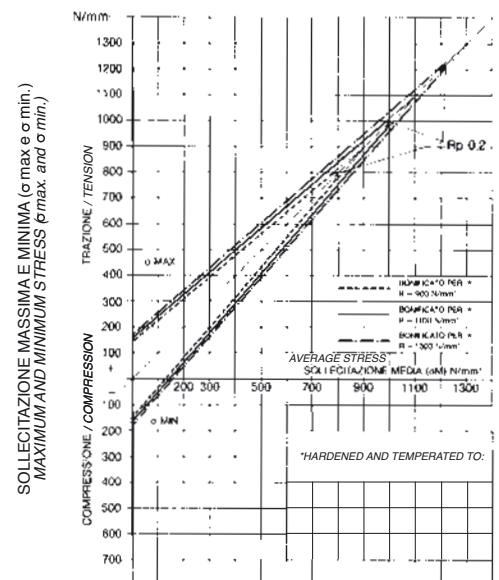
Quadro: 10 mm    Austenizzazione: 850 °C  
 Square: 10 mm    Austenitizing: 850 °C

## Diagramma di Goodman-Smith - Goodman-Smith diagram



Provette non tagliate Ø 10 mm. con superficie speculare (Ra ≤ 0.1 micron)  
 10 mm Ø non-notched test specimens with mirror surface (ra ≤ 0.1 micron)

## Diagramma di Goodman-Smith - Goodman-Smith diagram



Provette Ø 10 mm. con intaglio profondo 0,21 mm e raggio di raccordo a fondo intaglio = 0,21 mm (corrispondente alla filettatura M 10 passo grosso) sollecitazione unitaria calcolata sulla sezione di fondo intaglio.  
 10 mm diameter test specimens with 0.21 mm deep notch and radius at bottom of notch = 0.21 mm (corresponding to M 10 large pitch thread) unitary stress calculated on the bottom of notch section.