

**MATERIAL NO.:**

**1.1730**

<b>DESIGNATION:</b>	<b>DIN:</b> C 45 U
	<b>AFNOR:</b> XC 48
	<b>UNI:</b> -
	<b>AISI:</b> 1045
<b>INDICATORY ANALYSIS:</b>	C 0.45
	Si 0.30
	Mn 0.70
<b>STRENGTH:</b>	max 215 HB (≈ max. 710 N/mm <sup>2</sup> )
<b>THERMAL CONDUCTIVITY AT 20 °C:</b>	50 $\frac{W}{m K}$

<b>COEFFICIENT OF THERMAL EXPANSION [10<sup>-6</sup>/K]</b>	100 °C	200 °C	300 °C	400 °C	500 °C	600 °C	700 °C
	11.0	11.8	12.8	13.6	13.8		

<b>CHARACTER:</b>	» Unalloyed <b>tool steel</b> with excellent machinability; chilled cast steel, suitable for flame and inductive hardening
<b>APPLICATION:</b>	» Unhardened parts for mould, die and jig construction or plates and frames for mould bases and die sets
<b>TREATMENT BY:</b>	» Polishing, etching, EDM, nitriding, hard chrome plating: not usual
<b>HEAT TREATMENT:</b>	<p>» Soft annealing: 680 to 710 °C for about 2 to 5 hours slow controlled cooling of 10 to 20 °C per hour to about 600 °C; further cooling in air, <b>max. 190 HB</b></p> <p>» Hardening: 800 to 830 °C quenching in water obtainable hardness: <b>58 HRC</b> hardening depth: 3–5 mm max. 15 mm through-hardening thickness</p> <p>» Tempering: slow heating to tempering temperature immediately after hardening, to 180 to 300 °C depending on desired hardness 1 hour per 20 mm: min. 2 hours</p>

**TEMPERING CHART:**

