

Material data

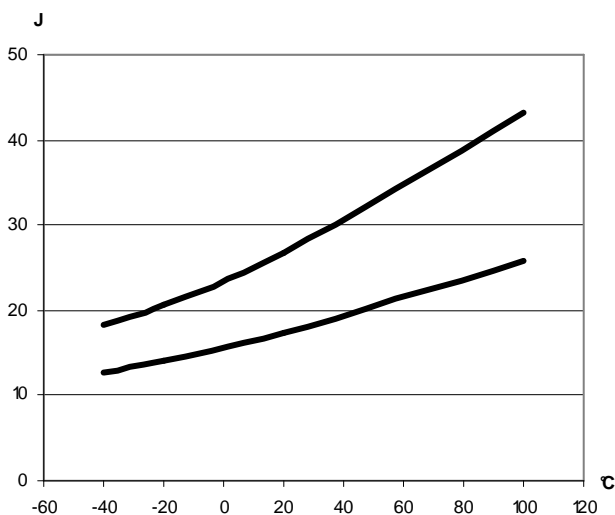
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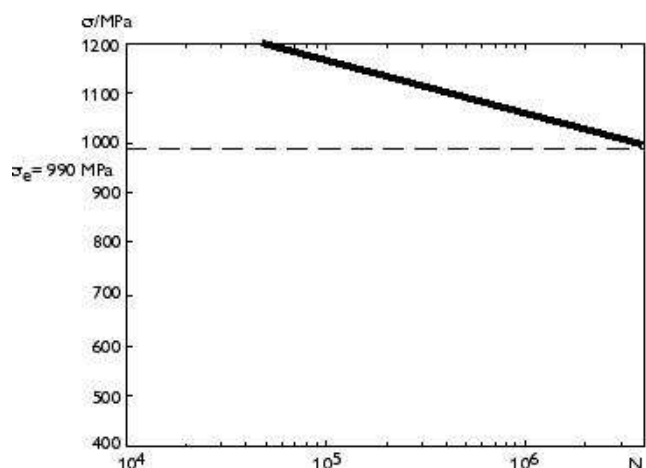
Hardened and tempered to 48-50 HRC, at 20°C (68°F)

Physical properties	Metric	English
Density	7 800 kg/m ³	0.282 lbs/in ³
Mechanical properties		
Hardness	48-50 HRC	48-50 HRC
Hardness, MAX recommended	54 HRC	54 HRC
Ultimate tensile strength, R _m	1600 N/mm ²	232 000 psi
Yield strength, R _{p0,2}	1400 N/mm ²	203 000 psi
Elongation at break, A ₅	12 %	12 %
Reduction of area, Z	50 %	50 %
Modulus of elasticity	210 000 N/mm ²	30.5x10 ⁶ psi
Poisson's ratio	0,29	0.29
Impact toughness, Charpy-V	20 J	14.7 ft lb
Shear modulus of elasticity	80 000 N/mm ²	1.16 x10 ⁶ psi
Thermal properties		
Coefficient of thermal expansion, linear	12,6 µm/m °C (20-200°C)	7.0 µin/in °F (68-390°F)
Specific heat capacity	460 J/kg °C	0.11 BTU/lb-°F
Thermal conductivity	25 W/m °C	176 BTU in/h ft ² °F

Transition curve 46-48 HRC



Wöhler curve 48 HRC
Stress amplitude at R=-1



Expected values valid for Round Bars up to Ø63.5 mm, longitudinal.