

Material data

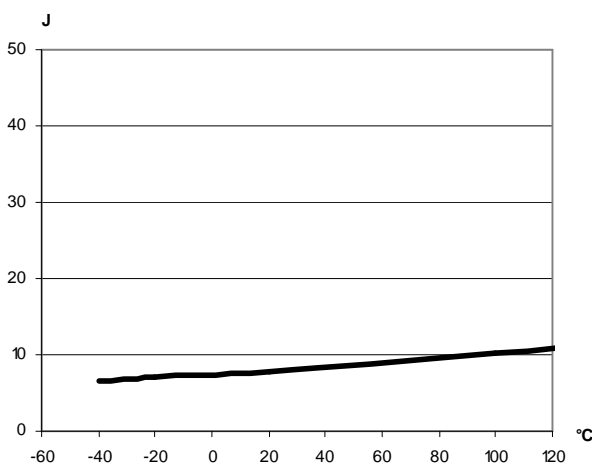
UDDEHOLM COMPONENT BUSINESS

UDDEHOLM CALDIE

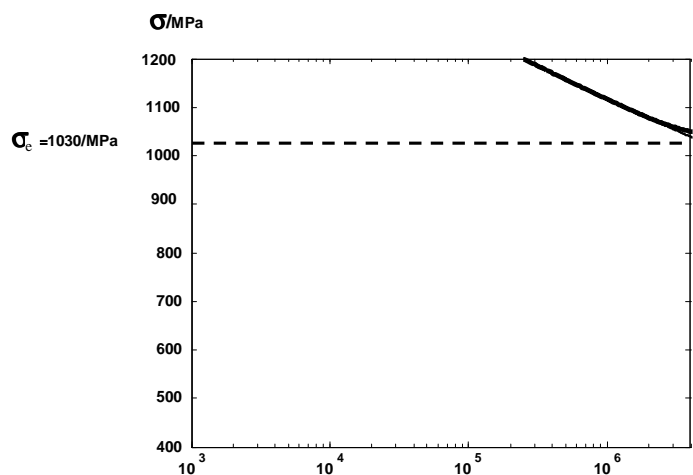
Hardened and tempered to 59-61 at 20°C (68°F)

Physical properties	Metric	English
Density	7 800 kg/m ³	0.282 lbs/in ³
Mechanical properties		
Hardness	59-61 HRC	59-61 HRC
Hardness, MAX recommended	62 HRC	62 HRC
Ultimate tensile strength, R _m	2500 N/mm ²	362 500 psi
Yield strength, R _{p0,2}	1900 N/mm ²	275 500 psi
Elongation at break, A ₅	3 %	3 %
Reduction of area, Z	3 %	3 %
Modulus of elasticity	210 000 N/mm ²	30.5x10 ⁶ psi
Poisson's ratio	0,29	0.29
Impact toughness, Charpy-V	9 J	6.6 ft lb
Shear modulus of elasticity	80 000 N/mm ²	1.16 x10 ⁶ psi
Thermal properties		
Coefficient of thermal expansion, linear	11,6 µm/m °C (20-200°C)	6,4 µin/in °F (68-390°F)
Specific heat capacity	460 J/kg °C	0.11 BTU/lb-°F
Thermal conductivity	W/m °C	BTU in/h ft ² °F

Transition curve Caldie 59-61 HRC



Wöhler curve 59-61 HRC
Stress amplitude at R=-1



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