

# Material data

UDDEHOLM COMPONENT BUSINESS

## UDDEHOLM CALMAX

Hardened and tempered to 54–56 HRC, at 20°C (68°F)

Physical properties	Metric	English
Density	7 770 kg/m <sup>3</sup>	0.281 lbs/in <sup>3</sup>
<b>Mechanical properties</b>		
Hardness	54–56 HRC	54–56 HRC
Hardness, MAX recommended	60 HRC	60 HRC
Ultimate tensile strength, R <sub>m</sub>	2100 N/mm <sup>2</sup>	304 600 psi
Yield strength, R <sub>p0,2</sub>	1400 N/mm <sup>2</sup>	203 000 psi
Elongation at break, A <sub>5</sub>	4 %	4 %
Reduction of area, Z	6 %	6 %
Modulus of elasticity	210 000 N/mm <sup>2</sup>	30.5x10 <sup>6</sup> psi
Poisson's ratio	0,29	0.29
Impact toughness, Charpy-V	4 J	3 ft lb
Shear modulus of elasticity	80 000 N/mm <sup>2</sup>	1.16 x10 <sup>6</sup> psi
<b>Thermal properties</b>		
Coefficient of thermal expansion, linear	12,2 μm/m °C (20-200°C)	6,8 μin/in °F (68-390°F)
Specific heat capacity	460 J/kg °C	0.11 BTU/lb-°F
Thermal conductivity	25 W/m °C	173 BTU in/h ft <sup>2</sup> °F

Transition curve 57 HRC

