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Tensile strength of various materials at 20°C

Material	Tensile strength MPa
Aluminium alloys	100 to 600
Carbon and low alloy steels	250 to 1300
Ceramics	1000 to 10000
Composites (e.g. GRP)	100 to 1800
Concrete	20 to 60
Copper alloys	100 to 600
Elastomers	2 to 12
Magnesium alloys	80 to 300
Nickel alloys	250 to 1500
Steel	500 to 1800
Wood	2 to 100
Zinc alloys	160 to 400

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Tensile modulus of various materials at 20°C

Material	Tensile strength GPa
Aluminium alloys	70 to 80
Elastomers	less than 0.2
Glass	50 to 80
Polymers	0.2 to 10
Concrete	20 to 50
Copper alloys	100 to 160
Magnesium alloys	40 to 45
Titanium alloys	110 to 125
Steel	200 to 210
Wood	0.2 to 20
Zinc alloys	43 to 96

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Melting temperature of some common materials

Material	Melting temperature K

Aluminium (pure)	933
Aluminium alloy (duralumin)	800
Brass (70% Cu, 30% Zn)	1227
Copper (pure)	1356
Gold	1336
Iron (pure)	1810
Lead (pure)	600
Magnesium	923
Nickel	1726
Silver	1234
Stainless Steel	1800
Mild Steel	1700
Tin	505
Titanium	1943
Zinc	693

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Thermal properties of some common metals

Material	Specific heat capacity at 0°C J/kgK	Coefficient of linear expansion /K	Thermal conductivity at 0°C W/mK
Aluminium	880	0.000023	235
Brass (65% Cu, 35% Zn)	370	0.0000185	120
Copper	390	0.0000167	283
Iron	437	0.000012	76
Lead	126	0.000029	35
Mild steel	450	0.000011	55
Silver	232	0.000019	418
Tin	140	0.000006	60

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Comparison of common thermoplastic materials with zinc alloy

Material	Density Mg/m ³	Strength MPa	Modulus GPa	Impact strength kg/m ²
ABS	1.02-1.07	50	2.3	7
Nylon	1.13-1.14	60	3.2	3
Polycarbonate	1.2	65	2.3	30
Zinc alloy	6.7	280	100	55

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Properties of die casting alloys at 20°

Material	Density Mg/m ³	Melting point °C	Strength MPa
Aluminium	2.7	600	150
Lead	11.3	320	20
Magnesium	1.8	520	150

Tin	7.3	230	12
Zinc	6.7	380	280

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