



Gray Iron Mechanical Properties

Property	Class 25 (as-cast)	Class 30 (as-cast)	Class 30 (annealed)	Class 35 (as-cast)	Class 40 (as-cast)
Brinell Hardness	187	207	109	212	235
Tensile Strength	29.9 ksi (206 MPa)	33.7 ksi (232 MPa)	20.6 ksi (142 MPa)	34.8 ksi (240 MPa)	41.9 ksi (289 MPa)
Modulus of Elasticity	16.6 Msi (114 GPa)	17.0 Msi (117 GPa)	14.5 Msi (100 GPa)	18.0 Msi (124 GPa)	18.2 Msi (126 GPa)
Tensile Poisson's Ratio	0.29	0.19	0.21	0.22	0.24
Compression Poisson's Ratio	0.27	0.28	0.26	0.28	0.23
Compression-to-Tensile Strength Ratio	3.68	3.84	4.05	3.63	3.71

Property Comparisons for Gray Iron Classes

Grade	Tensile Strength	Yield Strength	% Elongation	Brinell Hardness	Fracture Toughness (ksi-sq.in./MPa-sq. m)
1	140 ksi (966 MPa)	110 ksi (759 MPa)	11	302	100/109
2	165 ksi (1,139 MPa)	130 ksi (897 MPa)	10	340	78/85
3	190 ksi (1,311 MPa)	160 ksi (1,104 MPa)	7	387	55/60
4	220 ksi (1,518 MPa)	180 ksi (1,242 MPa)	5	418	48/52
5	240 ksi (1,656 MPa)	210 ksi (1,449 MPa)	3	460	40/44