

# Compacted (Vermicular) Graphite Cast Irons

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 A member of the Castings PLC group

## Technical Data

Compacted (Vermicular) Graphite Cast Irons BS EN 16079:2011	Units	Temperature	Material designation				
			EN-GJV-300	EN-GJV-350	EN-GJV-400	EN-GJV-450	EN-GJV-500
Ultimate tensile strength, R <sub>m</sub>	MPa	23 °C	300 to 375	350 to 425	400 to 475	450 to 525	500 to 575
		100 °C	275 to 350	325 to 400	375 to 450	425 to 500	475 to 550
		400 °C	225 to 300	275 to 350	300 to 375	350 to 425	400 to 475
0.2% proof stress, R <sub>p0.2</sub>	MPa	23 °C	210 to 260	245 to 295	280 to 330	315 to 365	350 to 400
		100 °C	190 to 240	220 to 270	255 to 305	290 to 340	325 to 375
		400 °C	170 to 220	195 to 245	230 to 280	265 to 315	300 to 350
Elongation, A	%	23 °C	2.0 to 5.0	1.5 to 4.0	1.0 to 3.5	1.0 to 2.5	0.5 to 2.0
		100 °C	1.5 to 4.5	1.5 to 3.5	1.0 to 3.0	1.0 to 2.0	0.5 to 1.5
		400 °C	1.0 to 4.0	1.0 to 3.0	1.0 to 2.5	0.5 to 1.5	0.5 to 1.5
Elastic modulus	GPa	23 °C	130 to 145	135 to 150	140 to 150	145 to 155	145 to 160
		100 °C	125 to 140	130 to 145	135 to 145	140 to 150	140 to 155
		400 °C	120 to 135	125 to 140	130 to 140	135 to 145	135 to 150
Endurance ratio: Rotating-bending Tension-compression 3-point bending		23 °C	0.50 to 0.55	0.47 to 0.52	0.45 to 0.50	0.45 to 0.50	0.43 to 0.48
		23 °C	0.30 to 0.40	0.27 to 0.37	0.25 to 0.35	0.25 to 0.35	0.20 to 0.30
		23 °C	0.65 to 0.75	0.62 to 0.72	0.60 to 0.70	0.60 to 0.70	0.55 to 0.65
Poisson's ratio			0.26	0.26	0.26	0.26	0.26
Density	g/cm <sup>3</sup>	23 °C	7.0 to 7.2	7.0 to 7.2	7.0 to 7.2	7.0 to 7.2	7.0 to 7.2
Thermal conductivity	W/(m.K)	23 °C	47	43	39	38	36
		100 °C	45	42	39	37	35
		400 °C	42	40	38	36	34
Thermal expansion coefficient	µm/(m.K)	100 °C	11	11	11	11	11
		400 °C	12.5	12.5	12.5	12.5	12.5
Specific heat capacity	J/(g.K)	100 °C	0.475	0.475	0.475	0.475	0.475
Matrix structure			Predominantly ferritic	Ferritic-pearlitic	Pearlitic-ferritic	Predominantly pearlitic	Fully pearlitic