

Material properties-15GR(M)

Test Items		unit	Result
Compressive Strength	Normal to Laminations	MPa	230
	Parallel to Laminations	MPa	113
Compressive Modulus	Normal to Laminations	GPa	2.59
	Parallel to Laminations	MPa	2.81
Tensile Strength		MPa	45.3
Tensile Modulus		GPa	4.54
In-Plane Shear Strength		MPa	46.1
Apparent Interlaminar Shear Strength		MPa	17.4
Charpy Impact strength		J/m	Not broken
Hardness(Rockwell M)		HRM	98
Flexural Strength		MPa	85.8
Density		g/cm ³	1.29
Swell in Water, % of wall thickness		%	< 0.1
Operating Temperature	Range for normal use	°C	- 30 ~ 130
	Max. operating temperature	°C	150
	Min. operating temperature	°C	-60
Thermal Expansion Coefficient	Normal to Laminations	°C x 10 ⁻⁵	9~10
	Parallel to Laminations	°C x 10 ⁻⁵	5~6
Coefficient of friction			0.05~0.15