



ROCBON PTFE Composites

Grade descriptions and properties

ROCBON 1000 series is a selection of high-performance, reinforced fluorocarbon resin composites that are unique in the plastic family and that possess exceptional properties:

- Chemical resistance
- Self-lubricating
- Thermal stability
- Moisture resorbant
- Contamination resistance
- Mechanical strength
- Electrical insulation

Grades and applications

1007	Virgin PTFE for packings, seals and bushings
1051	25% fiberglass-filled grade for common seals and bushings
1911 and 1921	Carbon/graphite-filled grades for bearings, piston rings, rider rings and various seals. An excellent combination that provides good service life. 1911 has 25% fill, 1921 has 35% fill
1521	50% stainless steel-filled grade for bearings and valve seat applications where high load and corrosion are primary concerns.
1821	Moly/bronze-filled grade for bearing and seal applications where high load strength is needed. 55% bronze, 5% moly filled
1551	Ceramic-filled grade for applications where high wear resistance is required. (25% mica)
1621	35% carbon fiber-filled grade where high strength and high wear performance is sought; a high-performance composite grade.

Sizes

Solid cylinder:	1.5 inch to 6 inch diameter, 12 inches long
Tube	1.5 inch to 15.875 inch diameter, 12 inches long
	Larger sizes are available upon request

Technical support

Technical support is available to help select the proper grade for the application, and engineering design service can be provided for the finished product. For fastest response, call our toll-free number.

Toll-Free	800.324.7743
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ROBCON PTFE Composite Properties

Physical Property	ASTM Test Method	Units	1007 Virgin PTFE	1051 Glass	1521 Stainless Steel	1551 Ceramic	1621 Carbon Fiber	1821 Moly/Bronze	1911 Carbon/Graphite	1921 Carbon/Graphite
Specific gravity	D792	g/cc	2.17	2.24	3.78	2.20	2.10	3.90	2.11	2.10
Tensile strength @ break	(MD)	psi	4,900	2,100	2,500	2,300	3,000	2,300	1,800	1,600
		MPa	33.8	14.5	17.2	15.9	20.7	15.9	12.4	11.0
(CD)	D638	psi	5,600	2,900	2,900	2,700	3,400	2,700	2,200	2,000
		MPa	38.6	20.0	20.0	18.6	23.5	18.6	15.2	13.8
Elongation @ break	(MD)	%	340	250	65	65	60	90	60	50
		(CD)	390	270	70	70	60	98	65	55
Deformation under load	(MD)	%	12.0	9.5	2.8	2.8	10.0	3.6	6.0	5.5
		(CD)	15.0	13.6	3.0	3.0	10.0	4.0	10.2	5.5
Flexural strength, 3% strain	D790	psi	1,500	1,950	3,500	3,200	2,400	3,300	2,350	2,400
		MPa	10.3	13.5	24.1	22.0	16.6	22.8	16.2	16.6
Flexural modulus	D790	psi	90,000	190,000	250,000	250,000	160,000	210,000	160,000	180,000
		MPa	622	1,313	1,727	1,727	1,106	1,451	1,106	1,244
Compressive strength, 5% strain	D695	psi	1,800	2,200	4,000	3,500	2,500	3,000	2,500	2,700
		MPa	12.4	15.2	27.6	24.1	17.2	20.7	17.2	18.6
Hardness, Durometer	—	Type D	54	62	70	70	68	70	64	66
Thermal expansion, X10 ⁻⁵	(MD)	in/in/°F	7.5	6.4	5.3	5.3	4.0	5.6	6.0	4.6
		mm/mm/°C	13.5	11.5	9.5	9.5	7.2	10.1	10.8	8.3
(CD)	D696	in/in/°F	6.2	4.1	4.0	4.0	3.6	4.3	4.7	4.0
		mm/mm/°C	3.4	2.3	2.2	2.2	2.0	2.4	2.6	2.2
Limiting PV @100 fpm, 72° F (22° C)	—	psi*10 ³	10,500	10,500	20,000	18,000	20,000	12,500	20,000	20,000
		MPa *mpm	22	22	42	38	42	26	42	42
Wear factor (F) X10 ⁻¹⁰	—	in ³ /min	6	6	2	2	6	5	6	10
		lb/ft/hr	13.6	13.6	4.5	4.5	13.6	11.3	13.6	22.6
Coefficient of friction	—	static	0.04	0.07	0.08	0.08	0.07	0.08	0.08	0.13
		dynamic	0.05	0.12	0.10	0.10	0.08	0.09	0.09	0.16

Note: The physical properties of ROC CARBON grades may vary in relation to the molded part size, configuration and the application conditions. The above values are typical and should be considered only as a guide or reference.

MD = Molded direction; CD = Cross direction