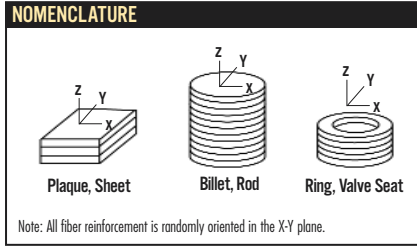


# TYPICAL PROPERTIES

# VESPEL® CR- 6100



MECHANICAL	TEST METHOD	SI UNITS	ENGLISH UNITS
ULTIMATE TENSILE STRENGTH (x-y plane)	ASTM D-3039	221 MPa	32 ksi
TENSILE MODULUS (x-y plane)	ASTM D-3039	18,000 MPa	2,600 ksi
ULTIMATE FLEXURAL STRENGTH (x-y plane)	ASTM D-790	152 MPa	22 ksi
FLEXURAL MODULUS (x-y plane)	ASTM D-790	10,800 MPa	1,600 ksi
ULTIMATE COMPRESSIVE STRENGTH (x-y plane)	ASTM D-695	80 MPa	11.7 ksi
COMPRESSIVE MODULUS (x-y plane)	ASTM D-695	2,600 MPa	383 ksi
ULTIMATE COMPRESSIVE STRENGTH (z-direction)	ASTM D-695	302 MPa	43.8 ksi
COMPRESSIVE MODULUS (z-direction)	ASTM D-695	2,200 MPa	318 ksi

## CHEMICALLY RESISTANT SHAPES FOR HOSTILE ENVIRONMENTS

VespeL® CR-6100 is a carbon fiber-filled thermoplastic fluoropolymer designed for use in hostile chemical environments. Due to its low creep and high thermal resistance, VespeL® CR-6100 often excels where other chemically resistant plastics fail. This makes VespeL® CR-6100 particularly well suited for seals, wear rings and other components used in a variety of devices and operating conditions.

Like most of the grades within the VespeL® parts and shapes product line, VespeL® CR-6100 is available in a wide variety of tube, rod, plaque and sheet sizes to satisfy your immediate needs. CR-6100 is also available as machined parts for more long-term usage.

THERMAL	TEST METHOD	SI UNITS	ENGLISH UNITS
SOFTENING POINT	Thermal Mechanical Analysis	287°C	550°F
THERMAL EXPANSION COEFFICIENT (x-y plane) (RT – 500 F / RT – 260 C)	ASTM D-696	3.3x10 <sup>-6</sup> m/m/°C	1.8x10 <sup>-6</sup> in./in./°F
THERMAL EXPANSION COEFFICIENT (z-direction) (RT – 300 F / RT – 149 C)	ASTM D-696	326x10 <sup>-6</sup> m/m/°C	180x10 <sup>-6</sup> in./in./°F
THERMAL EXPANSION COEFFICIENT (z-direction) (300 – 400 F / 149 – 204 C)	ASTM D-696	453x10 <sup>-6</sup> m/m/°C	250x10 <sup>-6</sup> in./in./°F
THERMAL EXPANSION COEFFICIENT (z-direction) (400 – 500 F / 204 – 260 C)	ASTM D-696	923x10 <sup>-6</sup> m/m/°C	510x10 <sup>-6</sup> in./in./°F

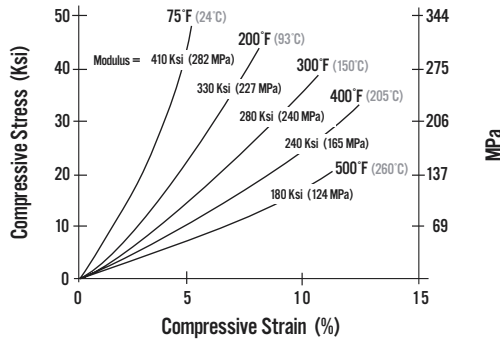
OTHER PROPERTIES	TEST METHOD	SI UNITS	ENGLISH UNITS
SPECIFIC GRAVITY	ASTM D-792	2.05 gr/cm <sup>3</sup>	0.074 lbs./cu. in.
HARDNESS	ASTM D-2240	75-80 Shore D	75-80 Shore D
WATER ABSORPTION (24 hrs. at 23 C)	ASTM D-5229	<1%	<1%

# COMPARATIVE WEAR DATA

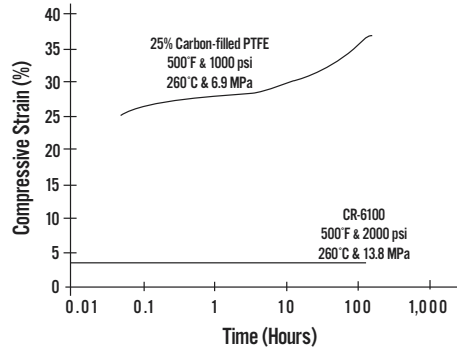
MATERIAL	WEAR RATE (E-6)				DYNAMIC COEFFICIENT OF FRICTION "fd"		LIMITING PV	
	25 ft./min.		50 ft./min.		25 ft./min. (0.13 m/sec.)	50 ft./min. (0.25 m/sec.)	ENGLISH (ft./min.-psi)	SI UNITS (MPa-m/sec.)
	in./hr.	cm/hr.	in./hr.	cm/hr.				
VESPEL® CR-6100	27.1	68.8	74.4	189.0	0.20	0.29	>155,000	>5.4
CARBON FIBER/PFA	47.1	119.6	102.8	261.1	0.18	0.24	>92,000	>3.2
PEEK-LUBRICATED	70.7	179.6	149.2*	379.0	0.52	0.18	40,000	1.4
PAI-LUBRICATED, WEAR-RESISTANT	37.3	94.7	1,435.2*	3,645.4	0.33	0.21	64,000	2.2
CARBON FIBER/PEEK	85.2	216.4	—	—	0.29	—	—	—
GLASS FIBER/PEEK	93.2	236.7	—	—	0.26	—	—	—
PEEK (UNFILLED)	699.0	1,775.5	—	—	0.42	—	—	—

\*Stick-slip, vibration.  
Unlubricated tri-pin-on AISI carbon steel disc finished to 16 microinches (0.4 micrometers) (AA); 400 psi (8.9 MPa)

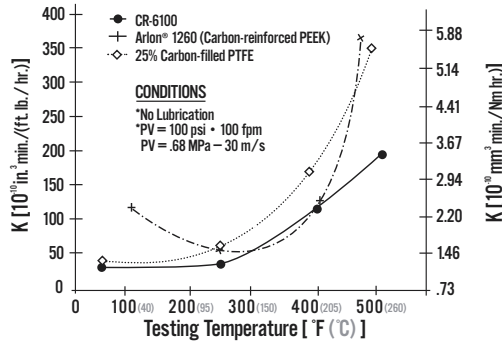
## COMPRESSIVE STRESS-STRAIN BEHAVIOR OF CR-6100



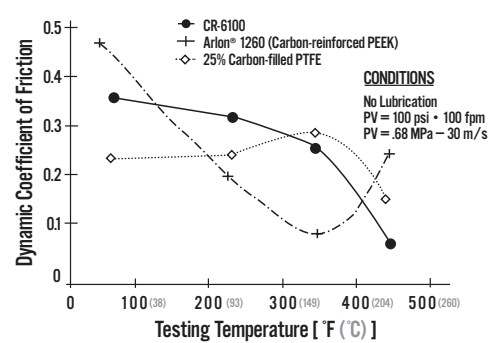
## COMPRESSIVE CREEP PROPERTIES



## \*WEAR FACTOR COMPARISON



## COEFFICIENT OF FRICTION COMPARISON



**For more information about DuPont™ Vespel®:**

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