

Honeywell



Honeywell Spectra® Fiber 1000
high-strength, light-weight
polyethylene fiber

Product Information Sheet

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high-strength, light-weight polyethylene fiber

PRODUCT DESCRIPTION: Spectra fiber 1000, the second in a series of Spectra fibers, was developed to meet customers' needs for increased performance. It is available in a multitude of deniers for use in a wide range of applications.

This extended-chain polyethylene fiber has one of the highest strength-to-weight ratios of any man-made fiber. Spectra fiber 1000 has a tenacity 15 to 20 percent higher than that of Spectra fiber 900. Spectra fiber is, pound for pound, 15 times stronger than steel, more durable than polyester and has a specific strength that is up to 40 percent greater than that of aramid fiber. Specific performance is dependent upon denier and filament count.

Applications:

- Police and military ballistic vests and helmets
- Composite armor for vehicles and aircraft
- Marine lines and commercial fishing nets
- Industrial cordage and slings
- Sailcloth, fishing line and other sporting equipment
- Cut-protection products

Product Benefits:

- Light enough to float (0.97 g/cc specific gravity)
- High resistance to chemicals, water and ultraviolet light
- Excellent vibration damping
- Highly resistant to flex fatigue
- Low coefficient of friction
- Good resistance to abrasion
- Low dielectric constant makes it virtually transparent to radar

PHYSICAL PROPERTIES												
(Nominal)	Spectra® Fiber 1000											
Weight/Unit Length (Denier) (Decitex)	75 83	100 111	130 144	180 200	215 239	275 306	375 417	435 483	650 722	1300 1444	1600 1778	2600 2888
Ultimate Tensile Strength (g/den) (Gpa)	43 3.68	39 3.34	38 3.25	38 3.25	38 3.25	36 3.08	35 3.00	35 2.95	36 3.08	35 3.00	36 3.02	34 2.91
Breaking Strength (lbs.)	7	9	11	16	18	22	29	33	52	100	123	195
Modulus (g/den) (Gpa)	1550 133	1450 124	1320 113	1350 116	1320 113	1320 113	1200 103	1180 101	1175 101	1150 98	1170 99	1135 97
Elongation (%)	2.9	3.0	2.8	2.9	2.9	3.1	3.1	3.2	3.5	3.3	3.5	3.5
Density (g/cc) (lbs/in ³)	0.97 0.035	0.97 0.035	0.97 0.035	0.97 0.035	0.97 0.035	0.97 0.035	0.97 0.035	0.97 0.035	0.97 0.035	0.97 0.035	0.97 0.035	0.97 0.035
Filament/tow	40	40	40	50	60	60	60	120	120	240	240	480
Filament (dpf)	1.9	2.5	3.3	3.6	3.6	4.6	6.3	3.6	5.4	5.4	6.67	5.4

For more information: Honeywell Advanced Fibers and Composites

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