

**K-Spec** core yarn strength retention is based on test results of components at 65°C/150°F (or less) for 6 months. K-Spec has a 100% strength retention when exposed to: Age, 10% detergent solution, rot and mildew, sunlight and Toluene; 99% strength retention when exposed to: acetic acid, gasoline, hydrochloric acid 1m, hydraulic fluid, kerosene, and sea water; 98% retention when exposed to: 25% ammonium hydroxide, 10% hypophosphite solution, and 40% phosphoric acid; 97% retention when exposed to 5m sodium hydroxide; 95% retention when exposed to Portland cement and sulfuric acid; and 88% retention when exposed to Clorox®, and nitric acid.

### 9.0 - Fiber Characteristics

(Using Nylon as a basis of 1.0)

For more information  
on this please see page 63.

Generic Fiber Type	Nylon	Polyester	Polypropylene	HDPE Olefin	Aramid	K-Spec
Bulk Strength <sup>1</sup>	1.0	.9-1.1	.55	2.8	2.7	2.75
Weight	1.0	1.21	.80	.85	1.26	1.01
Working <sup>2</sup> Elastic Elongation	1.0	.60	.80	.10	.10	.10
Co-efficient <sup>3</sup> of Friction	.10-.12	.12-.15	.15-.22	.08	.10-.12	.10
Melting Point	460°F	480°F	330°F	297°F	Chars at 800°F	Chars at 297°F
Critical <sup>4</sup> Temperature	180°F	180°F	180°F	150°F	300°F	180°F
Specific Gravity	1.14	1.38	.91	.97	1.44	1.2
Cold-Flow (Creep)	Negligible	Negligible	Negligible to High	Negligible to High	Negligible	Negligible

<sup>1</sup>Bulk Strength is defined as strength per circumference squared.

<sup>2</sup>Working is defined as rope actually in use under a cycling load.

<sup>3</sup>Co-efficient of friction is based on reluctance to slip or slide.

<sup>4</sup>Critical temperature is defined as the point at which degradation is caused by temperature alone.

Cold-Flow (Creep) is defined as fiber deformation (elongation) due to molecular slippage under a constant steady static loading situation. Fibers that have this inherent characteristic will display extremely low or negligible creep if minor fluctuations occur in the rate and/or frequency of load levels. In rope form, this would apply to polypropylene, polyethylene, and HDPE Olefin fibers.

# Chemical Resistance of K-Spec® Core Yarn

*Available only in Twin-Path® Extra Slings*

## Strength Retention After Chemical Immersion

	K-Spec® Core Yarn	
	<u>6 Mos.</u>	<u>2 Yrs.</u>
Seawater	100%	100%
Hydraulic Fluid	100%	100%
Kerosene	100%	100%
10% Detergent Solution	100%	100%
Gasoline	100%	100%
Toluene	100%	96%
Glacial Acetic Acid	100%	100%
1M Hydrochloric Acid	100%	100%
5M Sodium Hydroxide	100%	100%
Ammonium Hydroxide (29%)	100%	100%
Perchloroethylene	100%	100%
Clorox Bleach	91%	73%
Hypophosphite Solution (10%)	100%	*No Data
Nitric Acid (50% by Volume)	97%	*No Data
Sulfuric Acid (50% by Volume)	100%	*No Data
Phosphoric Acid (50% by Volume)	95%	*No Data

*\*No Data = Sample not tested*