SAMSON TECHNICAL BULLETIN

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DPX™—Innovative Fiber Technology

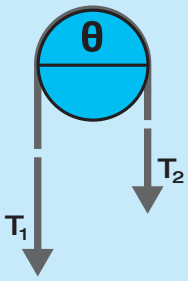
Through a proprietary process, Samson engineering has significantly changed the surface characteristics of traditional high modulus polyethylene (HMPE) ropes. This technology increases the coefficient of friction (COF) and enhances abrasion resistance. Samson recently developed DPX™ fiber using this technology. DPX™ is a unique blend of Dyneema® and polyester that provides a "prefuzzed" appearance, which wears and grips better than any HMPE fiber. The patented use of this unique fiber has resulted in three Samson products: DPX™-75, Quantum-8, and Quantum-12.

DPX™-75 Quantum-8 Quantum-12

Ropes made with DPX™ technology offer better grip in certain applications than traditional HMPE fiber ropes.

BETTER GRIP—HIGHER COF

Coefficient of Friction (COF) is measured based on the principle shown in Fig. 1.



The relationship of coefficient of friction and forces on either side of a drum can be expressed as:

$$e^{(\mu\theta)} = T_1/T_2$$

μ = coefficient of friction

WHERE:
T_1 *= tension applied on one side of the drum*
T_2 *= tension resulting on the opposite side of the drum*
e *= 2.718*
θ *= wrap angle, in radians*
μ *= coefficient of friction*

The rope is wrapped around a drum and tension is applied to one side of the drum. The tension is increased slowing until the rope begins to slip on the drum. When the rope slips, the tension being applied (T1) and the resulting tension on the opposite side of the drum (T2) are recorded and the static coefficient of friction, μ, can be calculated.

FIGURE 1 COF Measurements

Experimental results show that DPX has a higher COF than polyurethane coated HMPE, as shown in Fig. 2.

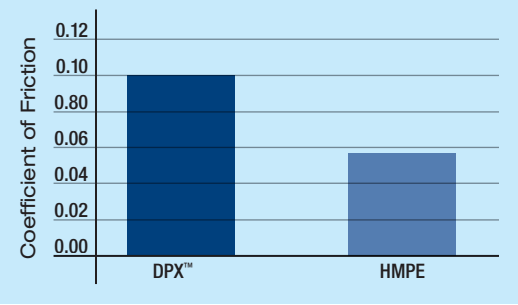


FIGURE 2 COF Comparison: DPX™ vs. HMPE

The combination of the high COF materials and the additional unique "fuzzed" surface provides better grip between the fiber and the substrate. The increased COF allows for the use of HMPE lines in applications where 100% HMPE ropes were previously limited, such as working on capstans and H-bitts.

BEST ABRASION RESISTANCE

Fig. 3 compares abrasion resistance of different synthetic fibers with uncoated polyester. DPX has the highest abrasion resistance tested per Samson standard testing procedure.

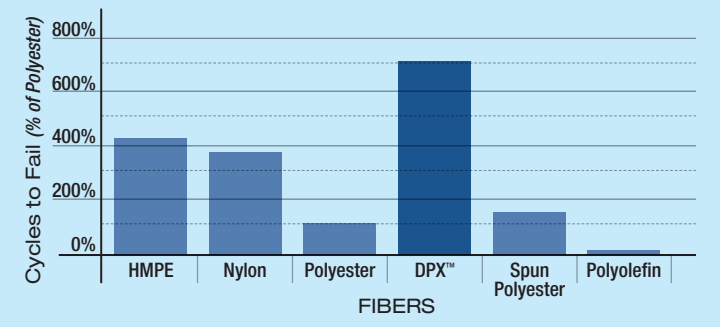


FIGURE 3 Abrasion Resistance Comparison

PATENTS

[1] *Gilmore, J., et al. "Wrapped yarns for use in ropes having predetermined surface characteristics."* United States Patent 7,134,267. November 14, 2006.

[2] *Gilmore, J., et al. "Wrapped yarns for use in ropes having predetermined surface characteristics."* United States Patent 7,367,176. May 6, 2008.

[3] *Gilmore, J., et al. "Wrapped yarns for use in ropes having predetermined surface characteristics."* United States Patent 7,735,308. June 15, 2010.

THE STRONGEST NAME IN ROPE