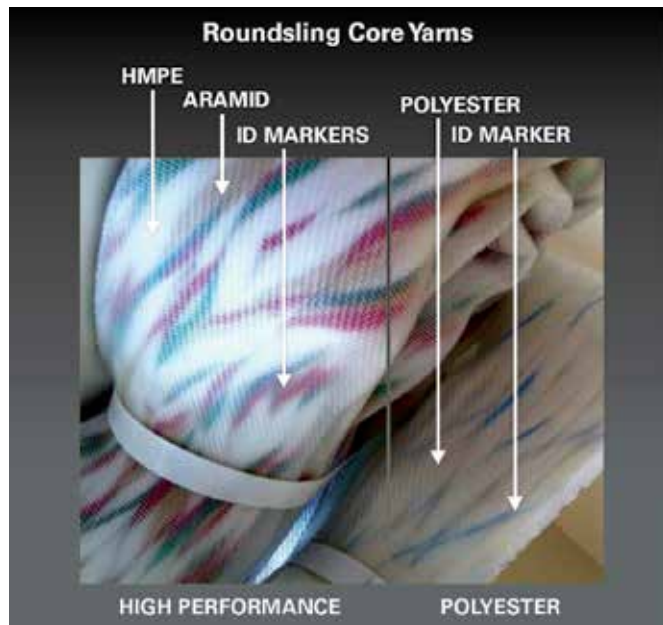


A Roundslings' Not Just a Roundsling Anymore

Over the last year of high-performance FIRST Full Inspection RoundSling technology training, it has become “clear” (no pun intended) that there’s a need to put the horse in front of the cart and start discussing some basics about high-performance roundslings.

There are many manufacturers producing high-performance roundslings. Some use branding for their roundslings, the internal core yarns, and/or the cover. With so many registered and trademarked symbols out there, distributors and end users alike may find some basic information useful. There are always exceptions, such as proprietary methods and products with unique characteristics, but for educational purposes, this article deals with the majority of high-performance roundslings in the field today.

The term “polyester roundslings” describes an endless sling composed of a continuous load-bearing core made from polyester yarns. Alternatively, high-performance roundsling cores are made from stronger but lightweight synthetic (high-performance) fiber yarns.



Understanding the terminology

A high-performance roundsling has generally come to be defined as a roundsling that is stronger and also lighter than a polyester roundsling of the same rated capacity. The higher strength core yarns with other desirable characteristics that are used today to manufacture high-performance roundslings are basically aramid, HMPE, and a blend of both often referred to as “hybrid.”

Aramid is a manufactured synthetic polyamide fiber that is very strong and resistant to high temperatures and extreme external

forces. It was introduced in the 1960s, and some common uses of aramid today include body armor, ropes and cables, tires, and sporting goods.

HMPE (high-modulus polyethylene), **UHMWPE** and **UHMW** (ultra-high-molecular weight polyethylene), and **HPPE** (high-performance polyethylene) are all synonymous terms and abbreviations for a more extreme type of fiber. Introduced in the 1970s, their strength-to-weight ratio is higher than steel and about 40% higher than aramid.

Again, “hybrid” indicates an Aramid and HMPE combination.

Fundamental Characteristics of High-Performance Core Yarn Fiber	
ARAMID* <ul style="list-style-type: none"> • High tenacity • High modulus of elasticity • Low Creep • Resistance to high temperatures • Good fatigue resistance • Chemical resistance • Low specific weight • Corrosion resistance 	HMPE - UHMWPE - UHMW - HPPE* <ul style="list-style-type: none"> • Up to 40% greater strength than aramid • Excellent vibration damping • Low coefficient of friction • Good resistance to abrasion • Highly resistant to flex fatigue • High resistance to chemicals, water and UV • Higher strength/wt ratio - light enough to float
<small>*Some examples of industry familiar brand names for HMPE's are Dyneema® and Spectra® and for Aramid's are Technora® and Vectran®.</small>	

Covers—the tubular jackets that embody and protect all roundslings—give the loose yarns their round shape. Most polyester and high-performance roundsling covers are woven from polyester and/or nylon filaments, and are double-wall in thickness. However, whether more layers are added—protection increased using woven aramid or HMPE cover material—whether fixed, removable or sliding, the strength of the high-performance roundsling is not affected. Covers are not a factor included in the rated capacity or working load limit of a high-performance roundsling.

Identification standards for high-performance roundslings carry the same requirements as all other synthetic slings, with one additional statement for material. Under ASME B30.9-6.7, Sling Identification, identification of (d) core material and (e) cover material, if different from core material, is required. The sling manufacturer may be contacted for basic core yarn information, should a brand or trademarked name be used instead.



High-performance roundslings are growing in popularity and advancing with new fiber and fabric technology. Users of this sling technology should build on the basics, and continue to learn and be properly trained to recognize, identify, select, and inspect their high-performance roundslings. ■

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