

The case for HPF slings

How to lower rigging costs in the 90's

By Dennis St. Germain

The author, knowledgeable in all phases of the sling business, makes a strong case for high performance fiber (HPF) synthetic slings.

Costs associated with rigging jobs include labor, rigging gear, cranes, material handling and transportation equipment; insurance (liability and worker's compensation) and total job hours. Lowering of each cost is something that professionals work on every day. Currently, the fastest and least expensive rigging jobs are performed by using High Performance Fiber (HPF) synthetic slings which cut the cost of the job in every category.

The extreme light weight of these new rigging tools lowers cost on labor, material handling and transportation equipment; insurance, total job hours and actual cost of the rigging gear purchased. An added benefit is increased job safety for the workers. Worker's compensation claims are cut by an average of 75%.

On a typical rigging job the weight of the slings can be 80% less than the traditional wire rope type. These HPF slings require fewer people to rig and in actual time studies the job hours were 75% less. With fewer people,

there is less chance of injuries. Light weight slings mean much fewer back and hand injuries from dragging, pinching or punctures.

Material handling equipment is generally not required. High Performance Fiber synthetic slings can be packaged for easy shipment, storage or handling. Fork lift trucks, tractor trailer rigs, small cranes for hook-up; or other mechanical helpers are not needed. These slings are also very flexible and do not kink. HPF synthetic slings can be used with many sizes and shapes of loads without having to continually replace them with new slings.

When using HPF slings, the rigging company will find that fewer slings are purchased than when wire rope slings were the main tools. A light weight HPF sling that will lift 50 tons can also be used on many smaller lifts. Instead of the riggers needing 3/8", 1/2", 5/8", 3/4", and 1-1/2" dia. wire rope slings — one or two capacities of HPF slings will do the entire job. Therefore, the initial cost of the slings for a given job can be lower with the

HPF slings. The use of Synthetic Armor Wear pads, gives the HPF slings protection from sharp edges and allows the use of these products in areas previously reserved for steel. Many construction jobs that only used wire rope slings in the past are now changing to these new products.

High Performance Fiber slings can be stored in small plastic containers, and some plants purchase plastic or rubber trash cans for this use. Shelves in the tool room are easily filled with these HPF slings. Wire rope slings need to be hung on a rack or laid on the ground or floor. When kinked from use, wire rope slings are impossible to store in a proper manner.

In companies where transportation from site to site is a problem these new products can be transported in cars or small pick-up trucks instead of by tractor trailers as in the case of wire rope slings.

High Performance Fiber slings are clean handling; wire rope slings are usually covered with grease. The wire rope must be lubricated both internally and externally to provide long life. HPF slings require no lubrication. HPF slings are also better able to resist deterioration from chemical exposure or salt water conditions than wire rope slings. If grease or oil contamination of the environment is a consideration on your job...then HPF slings are the clear choice.

Crane operators say that the lack of stretch compared to other types of synthetic slings and the dampening of vibration compared to wire rope slings make the loads feel better. Stretch of HPF slings at rated capacity is about 1% of their length.

Many lifts require cranes to be used at or near their rated capacity. When engineering these capacity lifts, careful consideration must be given to the total load weight including the rigging gear. High Performance Fiber slings in place of steel lowers the total load weight significantly which gives the crane operator greater boom extension capability. In some instances this weight saving will allow the contractor to use a smaller crane on the job. In

JOB REQUIREMENT COMPARISON CHART
FOR WIRE ROPE AND HIGH PERFORMANCE FIBER (HPF)
SYNTHETIC SLINGS

INITIAL SLING PURCHASE - Load Equals 100 Ton Rotor Shaft
Plus Cover plates.
Two Slings In Basket Hitch

JOB #1	WIRE ROPE		HPF	
Sling Weight 50'	400 lbs. each	\$1700	65 lbs. each	\$3400
Smaller Slings to Lift Covers	30 lbs. each	250	None Required	
Riggers	6		2	
Man Hours	18	1080	4	240
Forklift	Yes	400	No
Transport to Job	Truck	400	Car	100
	Total Job # 1	\$3830		\$3740

JOB #2	SAME LOAD AND RIGGING GEAR			
Sling Weight 50'	400 lbs. each	PAID	65 lbs. each	PAID
Smaller Slings to Lift Covers	30 lbs. each	PAID	None Required	
Riggers	6		2	
Man Hours	18	1080	4	240
Forklift	Yes	400	No
Transport to Job	Truck	400	Car	100
	Total Job # 2	\$1880		\$340

SAVINGS WITH HIGH PERFORMANCE FIBER (HPF) SLINGS = \$1,630



A 100 ton rotor shaft is being rigged for a lift at Ontario Hydro.

one lift evaluation for an off-shore installation the use of HPF slings saved 300 tons compared to conventional wire rope slings.

Previously, switching from wire rope or chain to synthetic slings involved the use of nylon or polyester material. The limitation of these synthetics was significant. The stretch compared to wire rope was tremendous — up to

15% of length at rated capacity. The weight saving was not significant and these synthetics were very bulky to handle. By contrast, stretch of the HPF fibers is about the same as wire rope and the size for handling purposes is very small.

Today, the only practical design for the use of High Performance Fiber synthetics is the engineered Twin-Path® construction which places the maximum number of load core yarns within the closest sphere of contact with the attachment fitting. In actual tests, using this design, slings that were 3' in length and weighed less than 3 lbs. achieved breaking strengths in excess of 200,000 lbs.

Many times in the field the rigging team needs short slings to make connections with the load and the crane. With the advent of the manufacturing process for Twin-Path® slings, the length of slings can be from 3' to over 100'. Large capacity slings of 3' length were an impossibility with wire rope. This added advantage of using short slings with very little stretch gives the rigger fewer problems with overhead lifting space.

Steel slings will mar and scratch loads that can cost time and money for repainting or machining. Twin-Path® slings do not damage the material being lifted. Padding necessary to pro-

tect loads from wire rope damage may not be needed with HPF slings. When pads are required, nothing is better than the patent pending synthetic armor wear pads.

Contact with electric conductors causes many injuries to workers performing rigging work. It is a fact that steel slings will conduct electricity. The dielectric property of HPF fibers is excellent. The slings will not conduct electricity. Even when soaking wet the transfer of current is greatly impeded and this may help in accident and injury prevention.

Inspection or rigging gear is required before use, and the criterion for inspection of High Performance Fiber slings was designed to be the easiest of any sling to perform. A Twin-Path® design has two complete slings between the hook and load. If one side is cut, the other side allows control until the load is landed. An inner red safety cover provides visual contrast to the outer gray cover so that the inspector can identify cuts in the covers. Load core extensions called Tell-Tails show when a sling has been severely overloaded or damaged internally from chemicals.

Twin-Path® slings have been designed to be repaired when cuts or other damage occurs. This feature allows the slings to last for long periods of time and each repair lowers the initial cost of the sling and renews the product for continued super saving performance. After a repair, the sling is proof-tested or pulled to twice its rated capacity and re-certified. When a cut or other damage is evident, the sling is returned to the manufacturer for evaluation.

The manufacturing process develops a sling that is extremely hard to destroy. Most slings when pulled to their breaking strength will fail catastrophically or all of a sudden with a loud noise. Twin-Path® slings fail in a cascade. They break several times at descending peak loads giving plenty of warning to anyone near.

Twin-Path® slings are available in multiple material combinations to provide the end user with the optimum advantages in synthetic slings. Kevlar®, Spectra®, Condura®, Dacron®, polyester, Nomex® and several other synthetic materials can be combined by factory trained technicians to provide the most cost effective sling.

These new sling products are saving money for smart riggers all over North America and in many other parts of the world. For more information on how Twin-Path® High Performance slings can fit into your future, please contact one of the thirty-two locations featuring SLINGMAX® RIGGING PRODUCTS or call 800-TRI-FLEX. ■

ERGONOMIC SLING



50 TONS - 44 LBS.