

Embracing change in load securement

As a company specializing in transporting and lifting heavy loads since 1939, load securement stands as a cornerstone of our operations. It's not just about moving goods, it's about moving them safely, efficiently and in compliance with the stringent regulations set by the Department of Transportation (DOT). As the Transportation Projects Manager at Bay Crane, I am and have been on the front lines of this effort, and I can attest to the constant pursuit of innovation in our company and our field of endeavor.

I can also confirm that folks in our industry are often a bit more resistant to change than in some other fields. I attribute part of this adherence to the status quo to the immense safety concerns and capital equipment protection responsibilities that are part of everyday life for most of us. Traditions, well-established methodologies and time-tested equipment are the linchpins of our trade. Yet, every so often, an innovation comes along that challenges these entrenched practices and prompts us to reconsider the tools we rely on.

I first heard about Doleco USA's DoNova PowerLash Textile Lashing Chain while serving a previous employer. The owner had shown us an advertisement for the product because he thought it was novel. It wasn't a good fit for that company at the

Bay Crane's **Jesse Krum** discusses his company's experience with textile chains and load binders.

time, but the concept of this textile chain made an impression, and it stuck with me.

These chains appeared to be both strong and lightweight. The patented Dyneema fiber the chains are made of is UV-resistant, chemical-resistant and has less stretch than steel chain. Dyneema's ultra-high-molecular-weight polyethylene (UHMWPE) material is 15 times stronger than steel by weight, and when made into chain, up to 85 percent lighter. So lightweight, it was said to be able to float on water.

They were stronger with a load rating that surpasses steel, a traditional favorite in our industry. For a comparative picture, Doleco's textile chains had a working load limit (WLL) of 22,000 pounds, whereas most of the steel chains we'd been accustomed to were Grade 70 with a load rating of around 11,300 pounds. A 20-foot length of the textile chain weighed 8.8 pounds, 15.8 pounds with clevis hooks.



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Compare that to 1/2-inch Grade 70 steel chain with clevis hooks at 57.5 pounds. When the numbers were laid out, the benefits became undeniable.

Knowledge is power

Fast-forward, and now I'm at Bay Crane and I handle all the oversize permits for our cranes and trucks, and I help a lot with our other branches with any of the bigger cargo transportation projects they have going on.

So in 2022 we've got what we call a super load, which is anything 160 feet long, 16 feet wide, 16 feet tall or 200,000-plus pounds. In this case, we had to haul a 762,000-pound generator for General Electric – a remarkable load even if

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THE AUTHOR

As Transportation Projects Manager for Bay Crane, **Jesse L. Krum** is a seasoned expert in the heavy haul and oversize transport industry.

Krum has amassed specialized experience in permitting loads across the U.S. and Canada, super load and project freight management, and coordinating law enforcement and civilian escorts nationwide. Beyond his logistical prowess, Krum possesses a keen understanding of fabrication and mechanics and has an eye for detail when it comes to load placement, securement, and over-height routing.

Bay Crane first used DoNova PowerLash Textile Lashing Chains and Binders to haul a "super load" comprised of a 762,000-pound generator.



I do say so myself. This cargo, combined with the trucks and trailer, amounted to a total weight of 1.1 million pounds.

As I was doing the math and realizing how many chains we needed, and it was just absurd. I knew we had to get something with a higher rating. We were looking into our rigging gear to see what kind of steel cables we had, and it still didn't seem feasible because I didn't think DOT would like the rigging configuration. Then I remembered Doleco's textile chain.

Before going out and buying the textile chain, I ran the idea past the New York State Troopers that were going to do the inspection, and to my joy, they were familiar with Doleco's product. They said that in 2018, the Commercial Vehicle Safety Administration (CVSA) had released a bulletin giving them guidelines and approving the use of the DoNova PowerLash Textile Lashing Chain. The official guidance gave us the confidence to decide to invest in the textile chain, which are more expensive than steel chains.

My next step was to reach out to Doleco USA. I spoke directly with Ralph Abato, president and managing director. I told him that we needed 18 20-foot DoNova textile chains and 18 matching load binders all with a WLL of 22,000.

Ralph was happy to help and because Doleco keeps the bulk chain in its inventory, all they had to do was cut the chains to length. I sent one of our staff members to collect the order within just a couple of days, and we immediately put it to use securing the 762,000-pound generator. In the end, it was a total home run.

Fewer touchpoints

In one of our subsequent projects, we transported four bridge girders into the Bronx for the Union Port Bridge project. These 90-foot girders were for a drawbridge and were fully painted. The textile chains' fiber composition meant that we didn't have to resort to using padding or other forms of protective layers, saving us both time and resources.

The flexibility these chains offer, especially in situations with limited anchoring locations, is another major benefit. In some scenarios, we'd have needed up to 70 steel chains for certain projects, but with textile chains, that number was reduced considerably. This adaptability and increased load rating drastically change how we approach securing loads, particularly when DOT regulations come into play regarding the



The increased load rating of the textile chains can drastically change how haulers approach securing loads, particularly when DOT regulations come into play regarding the number of chains and where they can be anchored.

number of chains and where they can be anchored.

Doleco has also developed DoNova PowerLash Textile Lashing Chains and Binders with an astronomical 44,000-pound WLL. We haven't purchased them yet, because I'm looking for the right project to come along, but this means we could use half of the number of textile chains and binders.

To put this in perspective, Doleco's 30/10 textile chain and load binder with a WLL of 44,000 in a 20-foot length weighs 14.8 pounds (21.2 pounds with clevis hooks). Compare that to 5/8-inch Grade 80 steel chain with clevis hooks and a WLL of 15,800 pounds and you have a 20-foot chain weighing 84.6 pounds. As an example, with just four of those Doleco textile chains and binders, we could have secured that 176,000-pound super load I highlighted earlier.

One of the things that initially struck me was how our associates responded when they picked up the first textile chains we brought back. They had flexible links that were twisted for added strength, and when handling the textile chains,

their lightweight nature was immediately evident. Some of them were apprehensive, because they thought it should weigh more or feel like it had more substance and others just stood there in disbelief.

It's the kind of technological marvel that reminds me of a quote from Arthur C. Clark: "Any sufficiently advanced technology is indistinguishable from magic."

Abato from Doleco USA aptly described the textile chain material as a "state-of-the-art fiber."

Today, some folks would prefer to use it on every job, but we utilize it selectively, where it makes the most sense. Others still worry about DOT accepting it even though it's all documented in the bulletin.

I learned about these textile chains through a basic conversation, not exactly the most effective way of communicating in this day and age. I wrote this article, because our industry doesn't have time to wait for groundbreaking technologies like this to slowly filter out.

While some in our industry may be hesitant to change – a natural human inclination – the advantages of this technology are hard to ignore. DOT's acceptance and the real-world outcomes we've experienced are testament to the product's efficacy. I've seen firsthand its resilience, even in the most challenging conditions.

As the landscape of our industry changes and evolves, embracing advancements is not just a choice; it's an imperative. It's about optimizing operations, enhancing safety, and ensuring that we're offering the best to our clients and our teams. If textile chains aren't part of the future of heavy-haul securement, I don't know what is. The future beckons, and for some it will be stronger, lighter and more efficient than ever before. ■

The lightweight nature of the textile chain can make some apprehensive because they think it should weigh more or feel like it needs more substance.

