

Security devices
deter potential
for cargo theft

Seal
or
steal

*But seals
may only show
whether thieves
have broken in*

By William Armbruster

Jeff Liroff had a eureka moment in 1996 after a 20-foot container that he shipped from Miami to Paraguay via Brazil was opened at its destination. But instead of 326 cartons of car stereo systems, the contents turned out to be 16,000 pounds of sand.



Jeff Liroff

“We had a sample of the sand sent to us, which we sent to a geologist to analyze. The best he could come up with was ‘Atlantic sand,’ which meant the switch occurred either in Miami or at Paranagua” — the Brazilian port where the container was offloaded. “Fat lot of help that was!” recalled Liroff, who was then head of a freight forwarding company called Omni Cargo.

Cargo thieves had broken the locking bar that secured the con-



Sealock inventor Jeff Liroff says the combination seal and lock provides greater security because it simultaneously seals the container's locking bars while locking the Sealock into itself.



Photo: Sealock

tainer, but no one noticed that the bar and the manufacturer's seal were missing because the ocean carrier's seal — the primary seal — was still intact and matched the shipping documents, Liroff said.

The incident prompted him to invent a combination container seal and lock called Sealock and to form a new company called Omni Security — generally known as Sealock.

Other manufacturers produce seals that are “tamper indicative,” which help ascertain whether the container has been broken into or whether the intended goods were never loaded, but they can't prevent determined thieves armed with the proper tools, according to a veteran marine surveyor who asked not to be identified.

“Keeping them out is the real herculean task,” he said.

Still, if the seal is checked at multiple points as the container moves through the supply chain, it will help the carrier, the shipper and the insurer to determine the weak link in the chain.

But if the container seal isn't checked at different stages as the container moves through the supply chain, they won't be able to pin down the location where the pilferage occurred, and law-enforcement agencies won't be able to deploy their resources effectively, the marine surveyor said.

Identifying the location of the breakdown will help determine which party is responsible for the loss and thus to settle insurance claims.

The insured value of the stolen car stereo systems was \$242,000. Liroff's insurer paid the claim. The goods were shipped on the Maersk vessel *Torben Maersk*.

Despite such losses, some shippers and carriers pay little attention to container seals, feeling that their insurance companies will compensate them if the cargo is stolen, according to Jerry Peck, product manager and government and military marketing manager at E.J. Brooks Inc., a Livingston, N.J.-based manufacturer of container seals.

"I'm surprised that the insurance companies don't crack down on them," Peck said, adding that insurance companies might lower premiums if shippers can show a reduced number of thefts.

Low prices

What makes the disdain for seals even more stunning is that the devices are so cheap. Tyden Brammall, another seal manufacturer, has some products priced as low as 5 cents, with others costing a couple of dollars each, according to Tom Hayes, vice president of global sales and marketing for the Angola, Ind.-based seal manufacturer.

Depending on the customer's volume, it can buy bolt seals normally priced by Brooks at \$1.25 each for as little as 50 cents, Peck said.

Seal manufacturers such as E.J. Brooks and Tyden Brammall offer a range of products employing different designs, materials and strength. The choice will depend in part on whether the seal is for a marine container, a truck trailer or a railcar. Marine containers, for example, may require stronger seals to withstand the stresses of being stacked on top of each other and the exposure to the elements during sea voyages.

The type of seal selected may also depend on whether the buyer is the shipper or the carrier and how the contract is written, Hayes said.

Seal manufacturers' customers include shippers and carriers. In some cases, Tyden Brammall designs the seals in conjunction with the customer, he said. As an example, he cited the case of a railroad that was suffering from regular attacks in the same location. "We looked at the tools the thieves were using, so we determined what kind of pull strength they would need," he said.

Pull strength refers to the amount of force that would be needed to break the seal.

The marine surveyor recommends seals that are threaded through the locking bars on a container to deter thieves from breaking them, but says that no seal is completely foolproof.

Most seals are discarded after they are used because they must be broken to open the container. However, electronic

Advice to the buyer

Tyden Brammall, a producer of container seals, has a feature on its Web site — www.tydenbrammall.com — called "Ask Cargo Guy." Here are some excerpts.

Q: How do I know which seal is best to use?

A: For starters, consider things like the value of your load (does your cargo have good "street value"?) and shipping routes (do you travel through any crime hot spots?). If you're shipping a product with high street value through some tough areas, you'll need good barrier protection. If not, maybe an indicative seal is good enough. And you have to think of things like your equipment requirements. Tank cars, for example, tend to have very small outlet valves, so you'd need a seal with a small enough diameter to fit. And some older trucks may not accommodate a bolt seal very well; you need a cable seal.

Q: Seals seem like a never-ending expense because every time you want to open them, you have to break them. Isn't a padlock better, because you can keep opening it and relocating it?

A: Well, a padlock has its uses. The best part about them is you can open and close them whenever you want. Unfortunately, that's also the bad part. With a padlock, you don't always know when it has been opened. The person holding the key has total access to your goods. That may be fine in some cases — like if you're married to your driver — but at other times, you may want a little more control. Most seals are designed specifically to be destroyed when someone attempts to open them. That's the whole point: if the seal is broken, then someone got to the goods. But you can also get reusable seals that'll do the same thing — for example, electronic data seals. Whenever someone opens it, the data is recorded. Then, when your cargo passes a checkpoint or reaches a destination, the data can be down-

loaded. If something is missing from your load, you'll know when and where the seal was opened. I've got to tell you, this is a powerful deterrent.


You can also find a padlock with indicative properties. In other words, someone can't just open it with the key. They have to break an indicative seal first, just to get to the keyhole. And there are lots of seals that, at least in part, can be reusable.

Q: I have a closed-loop, multiple-point delivery route, and I trust my drivers. I have trouble here and there, but I don't really see how seals could help. Am I missing something?

A: In certain hotspots across the country, it's not uncommon to be pilfered at a stoplight by organized gangs with rented trucks, or to be cleared out at a truck stop while your driver is inside having a double cheeseburger and chocolate malt. Because seals aid in cargo theft investigation, you can learn where these hotspots are and beef up your security accordingly.

Remember, there are a lot of seals that do double-duty: they provide indicative capabilities and also barrier protection. And I have to say, I know you trust your employees, but did you know that employees cause about 80 percent of today's cargo crime? That's something to think about.

Q: What are ASTM classes for seals?

A: The American Society for Testing Materials grades seals on the physical force it takes to break them, usually by pulling on the seal in a test fixture. A = 1-50 lbs. B = 51-200 lbs. C = 201-1,000 lbs. D = 1,001-3,000 lbs. E = 3,001-5,000 lbs. F = 5,000 lbs. or more. If your application is critical, you may want detailed information from the manufacturer about how the seal was tested. 

seals employing radio-frequency identification technology can be re-used. More important, they record the data whenever the seal is opened. That data can be downloaded when the container passes a checkpoint or reaches its destination.

While Brooks, Tyden Brammall and other seal producers have a large target market, Omni Security's Sealock aims at a high-end niche market, Liroff said.

Its largest customer, J.C. Penney, buys 50,000 Sealocks annually. It pays

Seal standards

The International Standards Organization offers the following definitions for three types of seals used on cargo containers. The definitions are spelled out in ISO Regulation 17712.

High security seal

A seal that is constructed and manufactured of material such as metal or metal cable with the intent to delay intrusion.

NOTE: High security seals generally must be removed with quality bolt cutters or cable cutters. They require inspection to indicate whether tampering has occurred or entry has been attempted. Customs and Border Protection requires that companies use this type of seal to be certified members of the Customs-Trade Partnership Against Terrorism.

Security seal

A seal that is constructed and manufactured of material that provides limited

resistance to intrusion and requires light-weight tools for removal.

NOTE: Security seals require inspection to indicate whether tampering has occurred or entry has been attempted.

Indicative seal

A seal that is constructed and manufactured of material that can easily be broken by hand or by using a simple snipping tool or shear.

NOTE: Indicative seals require inspection to indicate whether tampering has occurred or entry has been attempted.

ISO rules insist that product samples be tested by an independent testing lab that is not affiliated with the seal manufacturer. ⚙

\$11 ex factory for the devices, according to Liroff, Omni's president and chief executive. The seals are discarded after each use.

The Sealock is made of steel that is two inches wide and a quarter-inch thick, requiring thieves to use both a power-cutting tool such as an angle grinder and a cable cutter, according to the company's Web site, www.sealock.com. This prevents break-ins by thieves who do not carry such sophisticated tools with them, the Web site stated.

Brooks — www.ejbrooks.com — has a license agreement with Omni under which it produces a cheaper version known as the Keeper Sealock. It costs about \$3 for a seal that is three-sixteenths of an inch in diameter and \$2.50 for a seal that is one-eighth of an

inch in diameter, Peck said.

Brooks and Sealock are members of the International Seal Manufacturers Association, which is chaired by Richard S. Kirk Jr., Brooks's executive president. Members of the association have agreed to let auditors come in and inspect their facilities and use independent testing labs, Peck said. Members of the association are listed on its Web site, www.isma-security.org.

Concerns about terrorism have prompted increased interest in seals by the government. Customs and Border Protection requires that companies use high-security seals to qualify for certification as members of the Customs-Trade Partnership Against Terrorism. Customs previously used its own standards, but two years ago it agreed to definitions set

Government symposium

Next week the Defense Department's Locks, Safes, Vaults, Seals and Containers Program, and the Department of Homeland Security's Transportation Security Administration, will conduct a symposium on security seals.

The three-day conference, which begins Feb. 28, will provide a forum for an exchange of information and technology between industry and government, according to Hanchett Engineering Associates, which is organizing the conference. The symposium will explore operational, procedural, and technical issues concerning security seals, tamper-indicating devices, and RFID technology.

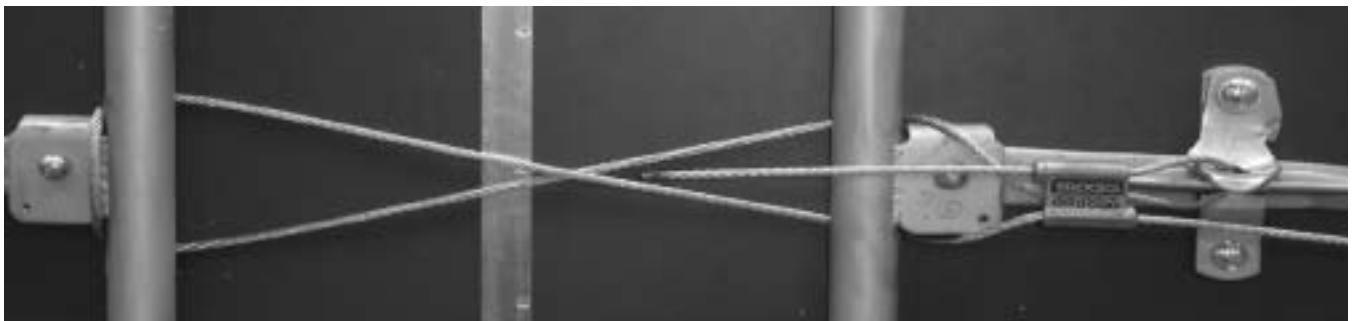
The topics for the panel sessions are:

- Protection of cargo shipments into and within the United States.
- Coordination with the world community to develop security seals requirements and standards to protect assets in transit.
- The role that security seals and associated products will play in meeting changing and challenging security requirements.

The symposium will be held at Fess Parker's Doubletree Resort in Santa Barbara, Calif. James Patton, acting director of maritime, cargo and trade policy in DHS's Office of Planning and Policy, will deliver the keynote address.

Details about the symposium are available at <http://locks.nfesc.navy.mil/> and www.hanchettengineering.com. ⚙

by the Geneva-based International Standards Organization for the sake of uniformity. The ISO standards for freight containers are spelled out in Regulation 17712. (See box, below.) ⚙



The steel cable on this version of the Sealock is threaded through the container's locking bars.

Photo: Sealock