

# LIGHTENING THE LOAD

They might just look like flat squares of plain black rubber, but what Trelleborg lifting bags do is quite remarkable.

TEXT: GWLADYS FOUCHÉ, DONNA GUINIVAN  
ILLUSTRATION AND PHOTOS: TRELLEBORG





**m**aybe they won't be used for lifting a pyramid of elephants, but lifting bags from Trelleborg can raise or move huge weights. For the past three decades Trelleborg lifting bags have been used to save lives, freeing people trapped in collapsed buildings and overturned cars. But now, with the launch of a new range aimed at the industrial market, they can be used in any application where lifting, moving, spreading or fixing is required. The technology behind the lifting bags is based on a vast knowledge of polymer-coated fabrics, in this case natural rubber reinforced with aramid fibers.

**The principle** of a lifting bag is simple. "You inflate it with compressed air so you can lift a load to a certain height," says Jacco Vonk, Sales Manager at the Trelleborg Engineered Systems manufacturing facility in Ridderkerk, the Netherlands, where the lifting bags were developed. "The more height you want, the bigger the bag must be."

But a bag does not have to be big to lift a heavy weight.

"In our new range, the smallest lifting bag is 150 millimeters long and wide and 22 millimeters thick, but it can lift up to a ton – the weight of a car," Vonk says. "Compressed air provides enormous power. The largest of our bags can move up to 67

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tons, the weight of a military tank, with compressed air at a pressure of only eight bars."

**Lifting bags** are expected to be used mainly instead of hydraulic jacks or cranes. They are much thinner than jacks – between 22 and 25 millimeters – which means they can be inserted into small spaces. And while cranes are heavy pieces of equipment that need to be specially transported to where they are needed, a lifting bag can be carried under your arm

and moved around in any type of vehicle, even a car.

"If a lorry has crashed, you can put a bag underneath it so that it can be lifted," says Vonk. "You probably couldn't do the same with a hydraulic jack, and you'd need to locate a crane and get it to the incident. The bag also inflates quickly, in a matter of seconds, while a hydraulic jack will take longer. Plus it's light to carry and there are no moving parts, so no maintenance is required."



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Jacco Vonk, Sales Manager, Trelleborg Engineered Systems in Ridderkerk, the Netherlands.

### ABOUT THE LIFTING BAGS

Trelleborg's lifting bags are made of natural rubber reinforced with aramid fibers, which are stronger, lighter and more flexible than steel.

The larger the contact area, the greater the lifting power of the bag. There are eight sizes of lifting bags available. The smallest, with a maximum lifting height of 80 millimeters, can move a ton. The largest can lift an object of up to 67 tons up to 520 millimeters. Two lifting bags can be used together to double the lifting height, and various accessories are available.



"The lifting bag is made like a car tire," explains Ruud Bokhout.

"There's an airtight inner rubber bag; then on top is an aramid layer absorbing the force and an outer rubber bag protecting it."



The lifting bags are currently being manufactured in the Trelleborg Engineering Systems facility in Ridderkerk in the Netherlands. The technology is also being transferred to its Chinese facility in Qingdao.

### THE USE OF LIFTING BAGS

A lifting bag has four different functions:

- **Lifting:** It can raise a load vertically. Upright vehicles, sections of big structures such as bridges, buildings or pipelines can be lifted. You can use it instead of a hydraulic jack to change the tires on a car or to lift a heavy machine to make its maintenance easier.
- **Pushing:** It can push a load sideways. When a building has collapsed, it can shove away slabs of concrete to free people trapped underneath it.
- **Spreading:** It can spread two things apart when inserted in a gap between them. In the mining industry, lifting bags are used to crack blocks of stones away from a wall.
- **Fixing:** It can fix a part in place. If you want to make a repair to a piece of machinery, for example, a small lifting bag will help keep components in place while the job is done.

"You can use lifting bags in all kinds of industries: offshore oil and gas exploration, mining, construction and logistics. There are many hidden markets out there," says Ruud Bokhout, Business Development Director at Trelleborg Engineered Systems in Ridderkerk. "When you talk to people in different industries, they may not be familiar with the product, but once they find out about it, they almost immediately come up with their own ideas of what they could do with it." ■

## WIN AN IPAD

T-Time sets you, our readers, a challenge. There are lots of applications for Trelleborg lifting bags, some of which we have talked about here.

But we'd like to hear from you. What ideas do you have for using Trelleborg lifting bags? Two iPads will be given away for the two best ideas (how/where to use them).

E-mail your suggestions (100 words max.) to [compete@trelleborg.com](mailto:compete@trelleborg.com) no later than June 15, 2010.

The contest is not open to employees of Trelleborg in Ridderkerk. Any applicable taxes will be paid by the winners. Participants in the competition agree that Trelleborg without consideration may exploit the idea commercially.

