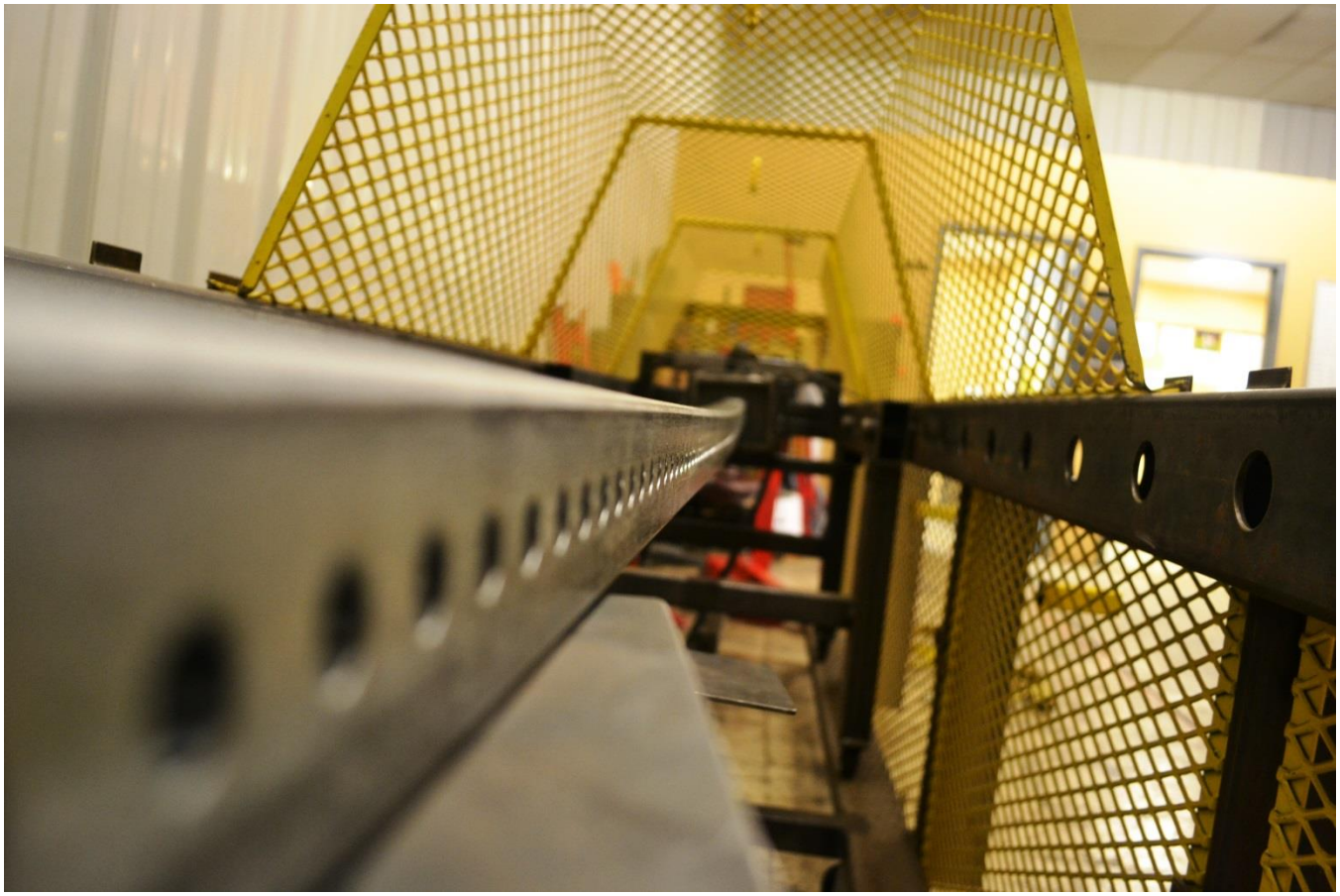
RES-Q-JACK'S RIGOROUS TESTING COULD HELP SHAPE INDUSTRY STANDARD



Res-Q-Jack has set the bar high in testing their struts, and now they are encouraging the National Fire Protection Association (NFPA) to consider elements of Res-Q-Jack's tough testing model as it establishes the industry standard.

Cris Pasto, the founder of the struts who continues to work in new product development and training, said Res-Q-Jack testing could be unique in the industry and their meetings with NFPA have convinced the association to learn more about Res-Q-Jack's rigorous testing.

"ONE STANDARD WILL MAKE IT EASIER FOR FIRE DEPARTMENTS TO MAKE AN INFORMED DECISION WHEN THEY ARE SHOPPING FOR STRUTS. WE ARE CONFIDENT THAT, ON A LEVEL PLAYING FIELD, THEY'LL CHOOSE RES-Q-JACK STRUTS."

Res-Q-Jack testing gives fire departments a clear picture of the load a strut can handle. "We test our struts fully extended, their weakest point, to get our working load limits," he said. "We want fire departments to have load numbers based on difficult conditions, which is what they almost always encounter."

As an example, Cris points to the load rating labels on every Res-Q-Jack strut. The amount of detail on the labels appears to be unique in the industry.

FOR EXAMPLE:

On the Auto X-Strut®, the 2-to-1 safety factor shows that the strut – fully assembled with head and pivoting base and fully extended to a maximum height of 87.25 inches – is safe to 3,250 pounds in the center (called "column load") and 2,380 pounds on the edges, either the tip of the round point or the tip of the chain grab. That's because the strut failed at 6,500 pounds in the center and 4,760 pounds on the edges during testing, which is replicated often to ensure continued quality.

The Aluminum X-Strut® – fully assembled with head and pivoting base and fully extended to a maximum height of 98 inches – is safe to 9,700 pounds in the center (it didn't fail in testing until almost 20,000 pounds), 6,700 pounds at the tip of the round point (failed at 13,400 pounds), and 5,600 at the tip of the chain grab (failed at 11,200 pounds).

The Super X-Strut® – fully assembled with head and pivoting base, fully extended to 99.7 inches – is safe to 10,500 pounds in the center (it didn't fail in testing until almost 21,000 pounds), 7,000 pounds at the tip of the round point (failed at 14,000 pounds), and 7,500 at the tip of the chain grab (failed at 15,000 pounds).

"We give buyers the maximum load at the weakest point of the strut," he said. "That way, we know no matter what height or what position they use the strut in, it will not fail."

Res-Q-Jack struts used in testing are disposed of because they often get damaged by being pushed to their limits. "It is considered destructive – but accurate – testing,"

Res-Q-Jack has been testing its struts this way since 2000, Cris said.

"When we first started testing the strength of our struts, it made sense that we should test them fully assembled, with a head and base and fully extended, to get a worst-case scenario," he said. "We quickly discovered that if you load the columns in the middle (column load), you get one number, and you get a much lower number if you load around the edges. Loading near the edges is referred to as 'offset' or 'eccentric' loading, which is a foreign matter to most with huge implications. In some instances, the strut can lose about half its capacity by moving just 1.5 inches off center with the applied load."

Some manufacturers have called for a 4-to-1 safety factor in talks with the NFPA, and Res-Q-Jack has heavy-duty struts that would perform exceptionally well, but Cris said a 4-to-1 safety factor would unnecessarily drive up production costs.

“It's simply not necessary to have a 4-to-1 safety factor when dealing with metal struts, which use known materials with homogeneous material properties,” he said. “It becomes a budget barrier to the customer. The common safety factor used in aircraft is about 1.25 to 1. They have to fly. A 4-to-1 would result in first-class ticket prices for coach seats.”

With struts, that safety factor would necessitate bigger, bulkier struts or more costly exotic materials, he said. “With the higher manufacturing costs and increased prices, rural fire departments won’t be able to buy struts, and that will lead to more people dying in accidents.”

Res-Q-Jack looks forward to working under uniform NFPA standards.

For more information or questions please contact us at info@res-q-jack.com or www.res-q-jack.com.

Thank you to Brian Pappalardo, Cris Pasto and George Campbell.