HYNES INDUSTRIES' CUSTOM ROLL FORM DESIGN RESULTS IN 14% WEIGHT REDUCTION AND 5% COST SAVINGS

for North American Truck & Trailer Manufacturer

HOW IT STARTED

In the ever-evolving landscape of the truck and trailer manufacturing industry, the pursuit of lightweight components has become paramount for staying competitive and meeting the dynamic demands of the market.

Using lightweight parts becomes even more crucial as the industry grows. In fact, recent research shows that the market reached $14.8 billion in 2023 and is projected to climb over the next five years. Plus, according to the United States Environmental Protection Agency, **lighter-weight truck/trailer components can reduce overall truck/trailer weight by thousands of pounds**. To put this into perspective, a 3,000-pound weight reduction could result in an annual savings of 240 gallons of fuel and eliminate up to two metric tons of greenhouse gases during the same time period.

One prominent North American truck/trailer manufacturer understood the importance of capitalizing on lightweight components to reap the benefits they offer. This case study explores the OEM's challenges, custom roll form solution, and results.

THE CHALLENGE

The OEM's primary challenge revolved around the need for continuous weight reduction in its trucks and trailers. Reduced trailer weight translates to increased cargo capacity and improved fuel efficiency—two critical factors in an era where sustainability and operational cost-effectiveness are at the forefront.

The OEM sought an innovative, custom roll form design that could be seamlessly incorporated into its existing fleet. Not only that, but it aimed to choose a partner that would collaborate with its own customer engineering teams to continuously brainstorm stronger, more cost-effective methods for overall weight reduction.

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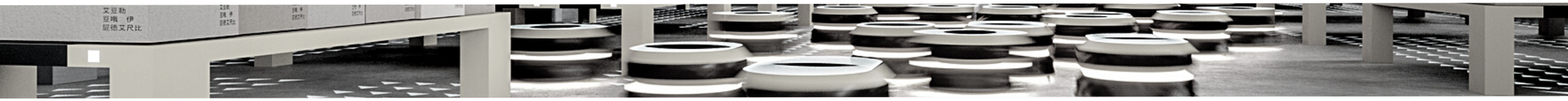
The OEM's ultimate goal was to balance strength, cost savings, and weight reduction while ensuring the final product met stringent industry standards and could integrate into its existing fleet.



A CUSTOM SOLUTION

Despite numerous options, the OEM chose to work with Hynes Industries because of its decades of experience designing custom truck/trailer components.

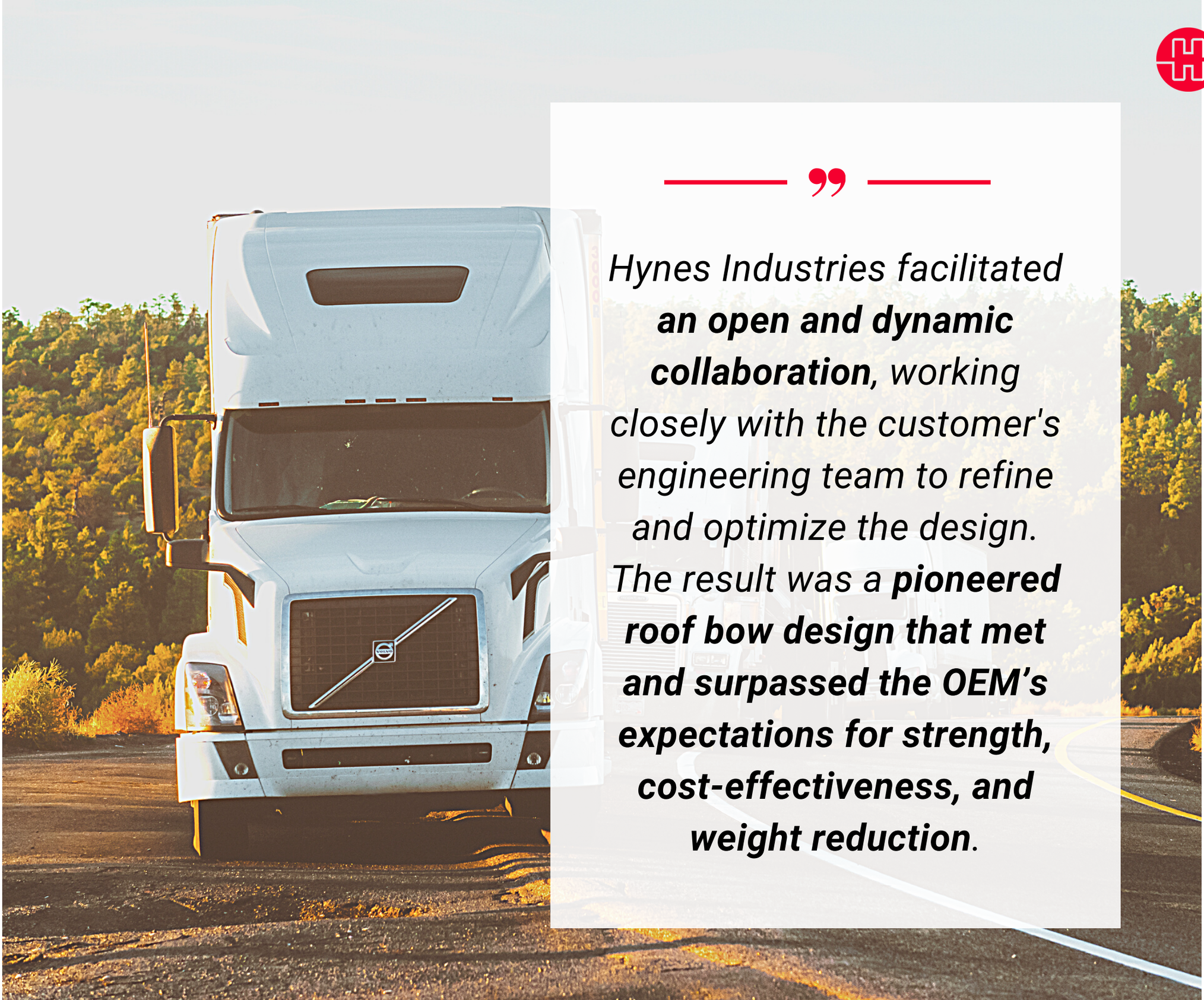
The process began with engaged, collaborative brainstorming sessions between Hynes's and the OEM's engineering teams. The key focus was to design a unique roof bow that maintained or exceeded structural requirements while using a thinner gauge of high-strength steel.

The custom solution involved a comprehensive design review process, leveraging Hynes Industries' expertise in material science and engineering. **The new roof bow design incorporated strategic reinforcements at key stress points, ensuring structural integrity while significantly reducing material usage.**

Hynes Industries facilitated an open and dynamic collaboration, working closely with the customer's engineering team to refine and optimize the design. The result was a pioneered roof bow design that met and surpassed the OEM's expectations for strength, cost-effectiveness, and weight reduction.

STEPS FOR SUCCESS

- Collaborative engineering
- Customized design
- Comprehensive review
- Refine & optimize



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THE RESULTS

Implementing Hynes Industries' custom roof bow design yielded impressive results for the truck & trailer manufacturer. The key outcomes included:

5% COST SAVINGS

The optimized design led to a 5% reduction in manufacturing costs. The use of a thinner gauge of material contributed significantly to cost savings, making the roof bow a more economical component.

5%
COST SAVINGS

16% WEIGHT REDUCTION

The thinner gauge of high-strength steel, coupled with strategic reinforcements, resulted in a remarkable 16% reduction in roof bow weight. This contributed to a lighter trailer, enhancing overall fuel efficiency and cargo capacity.

16%
WEIGHT REDUCTION

INCREASED STRENGTH & FUNCTIONALITY

The new design included features that could only be designed utilizing roll form fabrication, introducing a tubular return in the roof bow, which provided increased strength across the length of the roof bow. Additionally, the new design increased “skin adhesion” to the roof member, providing more structural integrity for the roof structure.

Hynes Industries' **collaborative approach and commitment to innovative engineering** allowed the teams to create effective solutions that directly addressed the OEM’s specific challenges.

REAP THE BENEFITS OF A LIGHTWEIGHT TRUCK/TRAILER COMPONENT

Do you need a roll form truck/trailer component built to your unique specifications? Then you've come to the right place. For over 25 years, Hynes has been recognized as the leading truck/trailer fabrication expert, and we collaborate with all segments of the truck/trailer industry to support custom builds for long haul trailers, final mile, platform and flatbed trailers, reefers, and RVs, and buses.

We can build components to your specification with material thicknesses that range from .030 inches to .25 inches, and we work with numerous types of ASTM steel alloys, including stainless, HSLA, hot roll, cold roll, galvanized and galvanneal, aluminum, and more. Contact us below to **request a quote** and begin designing your custom solution.

REQUEST A QUOTE

HYNES INDUSTRIES