



HENDRICKSON SPRING

Advanced
Spring Technology

- Larger payloads
- Superior performance
- Exceptional durability



To learn more about HENDRICKSON
Advanced Spring Technology,
call 855.743.3733 or visit
www.hendrickson-intl.com

 **HENDRICKSON**
The World Rides On Us®

Expertise and Vision

A World of Experience, Expertise and Vision

Hendrickson was founded in 1913 and revolutionized the heavy-duty commercial vehicle industry in 1926 when we introduced our first tandem walking-beam suspension. After more than 100 years, suspension technology and product innovation remain a focal point for Hendrickson.

Decades of engineering innovation and dedication to quality has established Hendrickson as a global leader in new suspension systems and spring technology to the medium and heavy-duty commercial vehicle industry. Ride performance, reliability and weight optimization are key attributes of all Hendrickson suspension systems and spring products.

Global Manufacturing

The power to deliver a world of improved performance

Hendrickson has numerous manufacturing and design facilities around the globe. With thousands of employees in multiple countries, Hendrickson's regional manufacturing and technical support facilities are uniquely positioned to supply a wide range of springs for global markets.

Woodridge, Illinois, USA

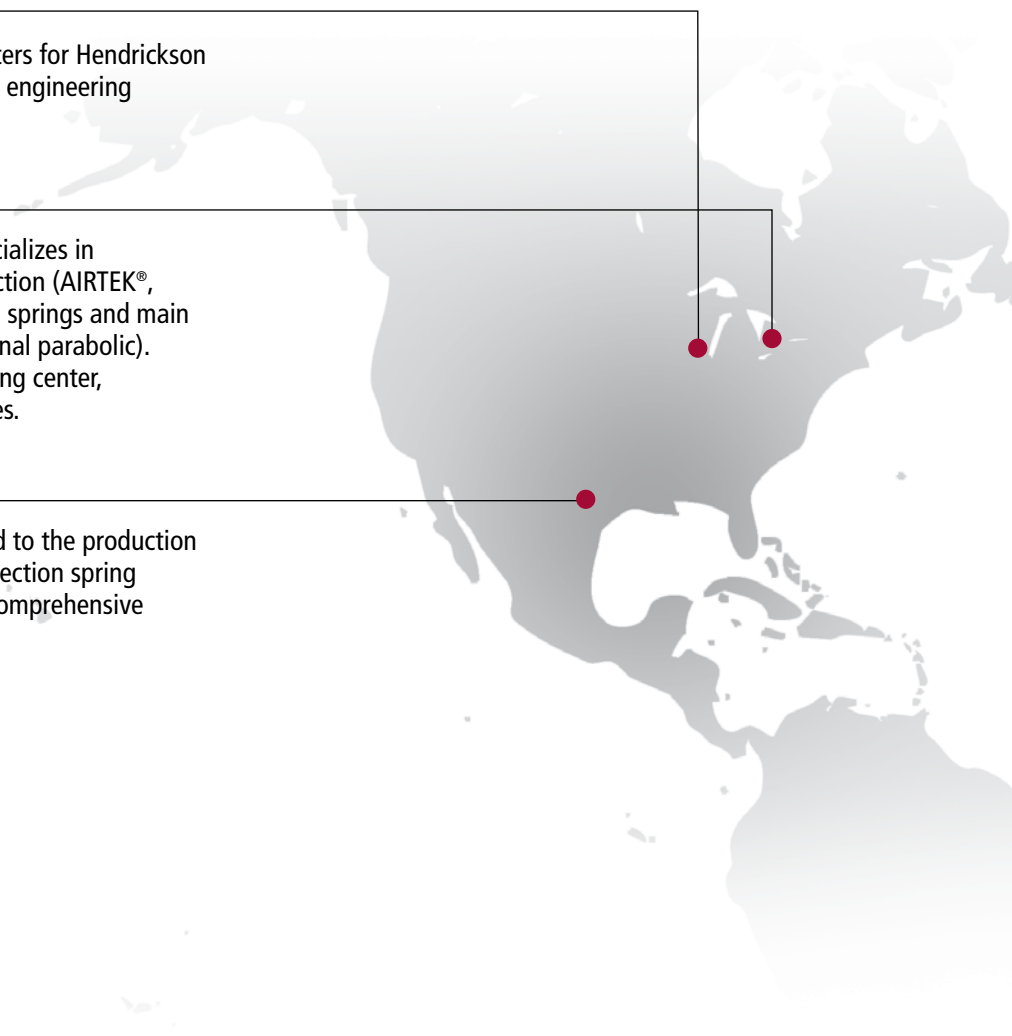
The Woodridge facility is the world headquarters for Hendrickson Truck Commercial Vehicle Systems and global engineering research and development center.

Stratford, Ontario, Canada

Hendrickson Spring of Stratford, Ontario, specializes in high-stress, parabolic taper-leaf spring production (AIRTEK®, MONOLEAF), as well as unique heavy-section springs and main support members (z-spring, air beam, vocational parabolic). The facility features a technical and engineering center, laboratory and comprehensive testing facilities.

Piedras Negras, Mexico

The Piedras Negras Spring facility is dedicated to the production of multi-leaf, parabolic taper-leaf and heavy section spring designs. The facility features laboratory and comprehensive testing facilities.



Spring Technology

SRX technology

- Reduces weight while increasing strength, spring life and ride quality
- Proprietary material structure and design
- Uniquely tempered with our proprietary heat treating process
- Stress peened for maximum residual stress and longer life

A Material Difference

Unique Materials

Hendrickson works closely with major steel manufacturers to produce proprietary, top quality, fine-grain steel with high tensile strength for improved durability.

Rolling

Our proprietary material is rolled into specific profiles by Hendrickson's automated rolling mills.

Tempering

Uniform fine grain and high strength are then assured by a proprietary heat treatment process designed and developed by Hendrickson.

Peening

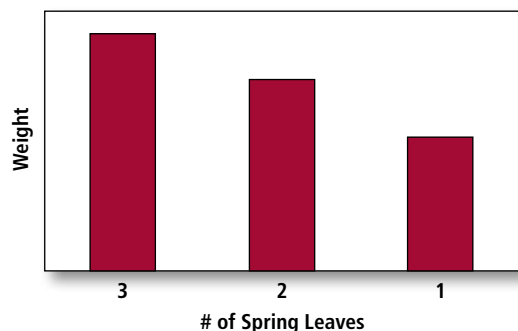
All critical surfaces of Hendrickson springs are then mechanically treated using a proprietary peening process to further improve fatigue life.

Hendrickson's unique manufacturing technology allows us to produce more efficient springs that reduce weight and improve ride performance and durability. This advanced technology can reduce weight by as much as 70 percent over conventional multi-leaf (flat) springs.

Our advanced products provide weight savings by reducing the number of spring leaves. The following benefits are the result of reduced leaves:

- Reduced spring interleaf friction
- Reduced dynamic hysteresis effects
- Advanced materials developed by Hendrickson maintain spring rate without degrading vehicle performance
- Decreased overall assembly weight
- Cost effective design for high value-to-weight ratio

Spring Assembly Weight Relative to the Number of Spring Leaves



Advanced materials have allowed Hendrickson to design fewer leaves to save weight while maintaining spring rate.

Springs and Bushings



MONOLEAF SPRING

This innovative spring design using SRX technology provides truck steer axles with a more efficient suspension system for significant weight reduction and ride comfort.



Z-SPRING

Hendrickson's innovative design and manufacturing capability has resulted in efficient air ride main support members that are both durable and high performing for a variety of suspension designs.



PARABOLIC TAPER-LEAF SPRING

Hendrickson is the leading manufacturer of parabolic taper-leaf springs, custom designed for a variety of on-highway and vocational trucks. The parabolic taper spring is constructed using our proprietary process and materials.



MULTI-LEAF SPRING

Hendrickson designs and produces multi-leaf springs for a variety of applications. Rugged yet efficient, the multi-leaf is subject to all of Hendrickson's stringent design and quality assurance standards.



AIR BEAM

Hendrickson's proprietary heavy-section material and forming experience provided innovative solutions for the popular air ride suspensions in demand today. Years of product research and development have resulted in efficient suspension air beams that provide excellent ride without sacrificing handling.



VOCATIONAL PARABOLIC SPRING

Hendrickson designs and produces a variety of rear heavy-section parabolic springs for vocational applications, such as 6-rod suspensions.

ADVANCED BUSHINGS

Hendrickson's unique elastomer design capability results in lower cost, high performance, and durable maintenance free bushings. The spring eye bushings are designed as a system with spring designs, providing unparalleled spring performance in the areas of roll stability, ride and durability.



Springs and Bushings

QUALITY AND DURABILITY

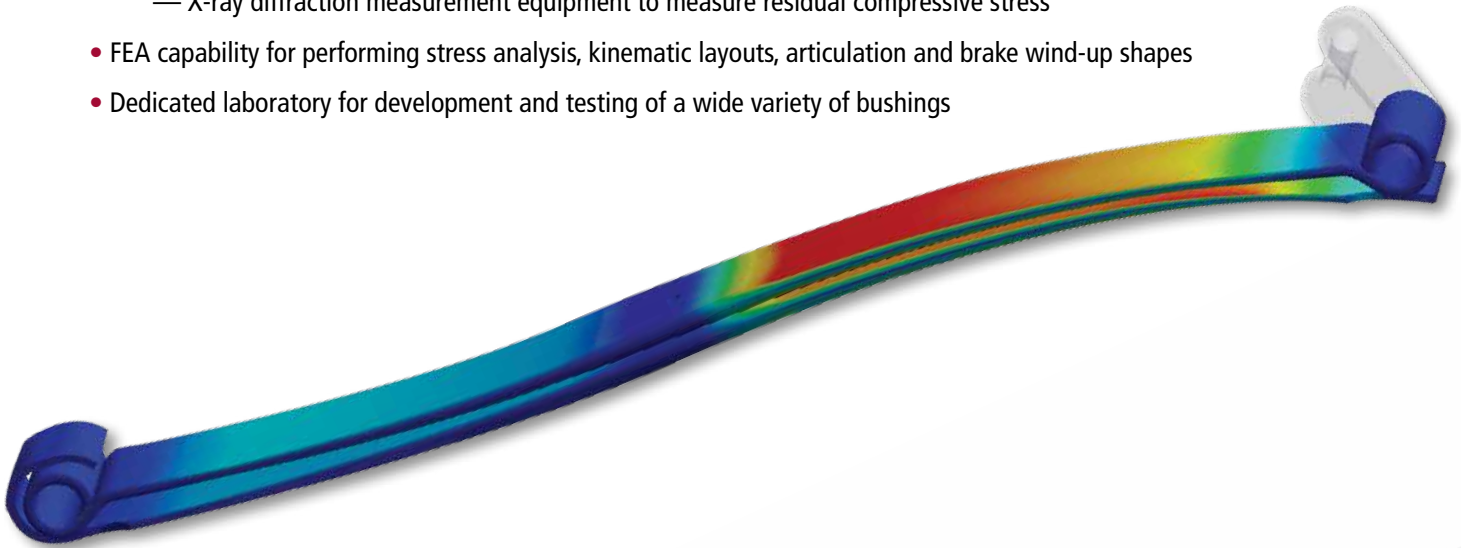
From design integrity to extensive manufacturing quality assurance programs, TS certified Hendrickson Spring products are laboratory, test track and road tested to provide the ultimate in performance and durability. Hendrickson's focus on continuous improvement through the application of QOS principles has been supplemented and accelerated by the addition of a dedicated Manufacturing Excellence initiative. These initiatives are designed to drive down customer costs and total cost of ownership. In addition, Hendrickson uses a data driven process and demonstrated Six Sigma methodology to identify, define and control manufacturing variances to ensure process repeatability.

TECHNICAL SUPERIORITY

Hendrickson is the only spring manufacturer integrated with a commercial vehicle suspension company. Our unique global engineering, design and manufacturing capabilities deliver the technology necessary for cost-effective development process that delivers the ideal solution in both a spring and suspension system.

The following investments have given us the ability to bring value to every component:

- Test laboratory of nearly 40,000 sq. ft. equipped with four drive through truck bays and a variety of test rigs designed to simulate real-world conditions
 - Dynamic response testers to ensure optimum ride characteristics
 - Programmable fatigue testers and software to assess durability and product life
 - Complete kinematics test rig to verify optimum handling performance
- Comprehensive metallurgical laboratory with:
 - Scanning electron microscope to ensure material integrity
 - X-ray diffraction measurement equipment to measure residual compressive stress
- FEA capability for performing stress analysis, kinematic layouts, articulation and brake wind-up shapes
- Dedicated laboratory for development and testing of a wide variety of bushings



Hendrickson uses Finite Element Analysis (FEA) to optimize stress distribution and evaluate spring rate in order to maximize fatigue life and meet customer performance requirements.



OUR COMMITMENT

Preserve and build upon our 100 year+ legacy as innovators and manufacturers of suspension systems and components for the global medium- and heavy-duty vehicle industry.

Serve the transportation industry with innovative products that deliver improved productivity and profitability.

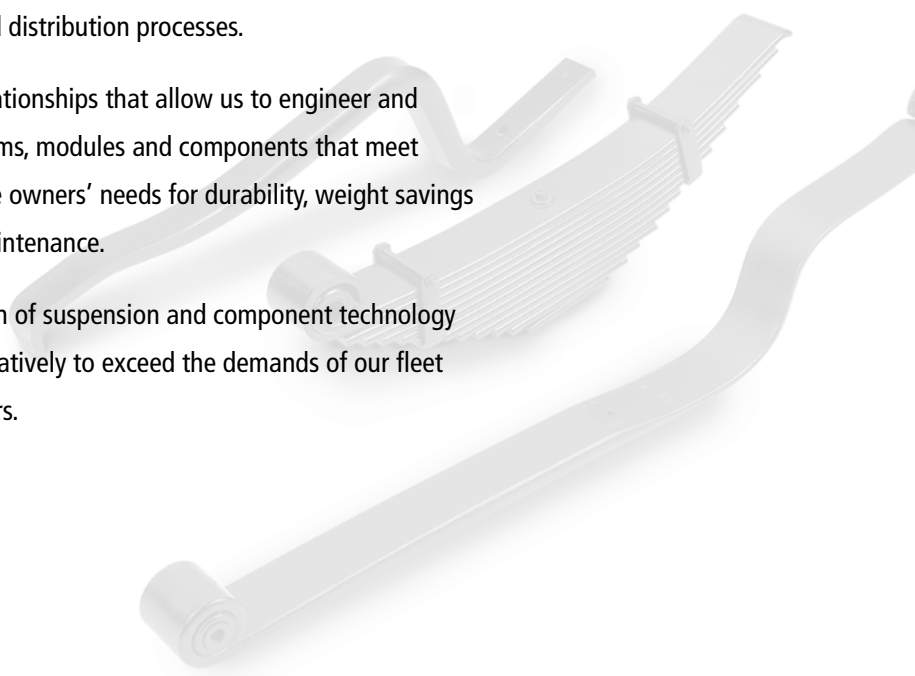
Supply commercial vehicles around the world with durable and cost-effective, advanced ride solution technologies.

Champion dedicated leadership and employees that uphold our proud heritage through creativity, integrity and superior service.

Develop superior, differentiated products that promote leading-edge manufacturing and distribution processes.

Forge strategic relationships that allow us to engineer and manufacture systems, modules and components that meet commercial vehicle owners' needs for durability, weight savings and minimized maintenance.

Advance the design of suspension and component technology by working cooperatively to exceed the demands of our fleet and OEM customers.



Call your truck dealer or Hendrickson at **630.910.2800** or **855.RIDERED (743.3733)** for additional information.



www.hendrickson-intl.com

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