

Air vs. Mechanical

Rear Drive Axle Suspension Systems for Fire and Rescue Applications

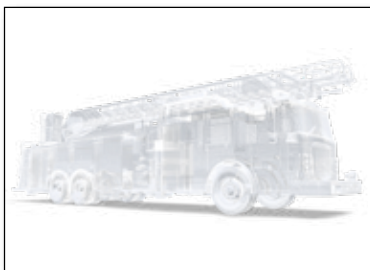


- Increases driver and equipment protection
- Outstanding ride quality
- Increases stability

ROADMAAX®



FIREMAAX® EX



Hendrickson's FIREMAAX® EX and ROADMAAX® rear drive axle air suspensions are purpose-built for the severe-duty fire and rescue market, delivering the ride quality, stability, and handling required in the most demanding environments. FIREMAAX EX combines a robust design with performance-enhancing features to offer a package of benefits unique to emergency vehicle suspensions. ROADMAAX builds on Hendrickson's proven main support member spring technology and provides outstanding equipment protection and exceptional ride and handling characteristics for fire and rescue applications - even through sharp turns, rough terrain, and unexpected conditions.

To learn more about FIREMAAX EX and ROADMAAX,
call 855.743.3733 or visit www.hendrickson-fire.com

HENDRICKSON
The World Rides On Us®

Features and Benefits

FIREMAAX® EX

Genuine Hendrickson Torque Rods

- Three-rod configuration reduces axle stress, welding and complexity
- Optimized configuration helps improve handling and roll stiffness
- Premium retained rubber bushings for increased service life and resistance to walkout
- Alternative rods available for disc brake use

Dual Upper Air Spring Support Brackets

- Protect air springs during extreme maneuvers or when outriggers are used

Air Springs

- Large volume, low-frequency design for improved ride
- Advanced design air springs lift and support the load with less air pressure

Cast Structural Beams

- Advanced beams utilize premium materials for high durability and reliability
- Robust rubber bushings improve service life and eliminate lubrication requirements

QUIK-ALIGN®

- Allows for easy axle alignment to extend tire life
- Alignment achieved without the use of shims

Axle Connections

- Axle pivot connections decrease torsional axle stress for reduced maintenance and increased joint integrity
- Integrated axle stop contact pads reduce axle stress

Dual Height Control Valves

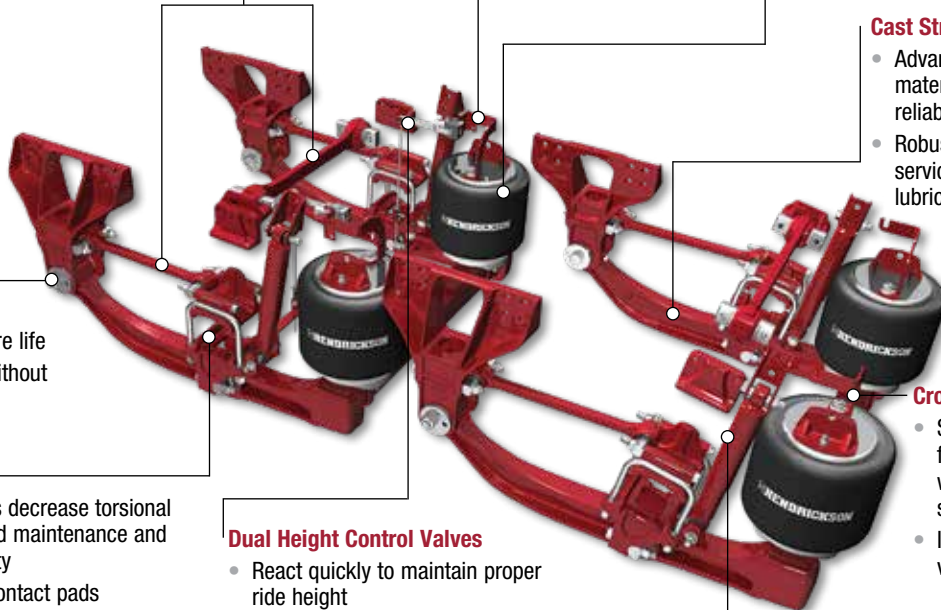
- React quickly to maintain proper ride height

Cross Beams

- Seamless fabrication technology forms a robust torsion system with structural beams, improving stability
- Increased ground clearance versus similar air suspensions

Heavy-Duty Shock Absorbers

- Positioned and tuned for optimum damping characteristics
- Protect air springs from overextension



ROADMAAX®

TRAAX ROD® – Torque Rods

- Fabricated heavy-duty torque rods provide greater durability over conventional rods
- Enhances handling during cornering by controlling lateral forces to maintain axle position
- Exceptional bushing walk-out performance

Frame Hanger Bracket

- Wide footprint distributes load over a larger area for reduced frame stress

Main Support Member

- Efficiently designed for optimized roll stiffness and durability
- Provides neutral roll steer for better handling
- Painted with proprietary zinc-enriched paint for rust prevention

Height Control Valve

- Fast-acting HCVs maintain precise ride height control through changing road surfaces, loads and driving conditions

Air Spring

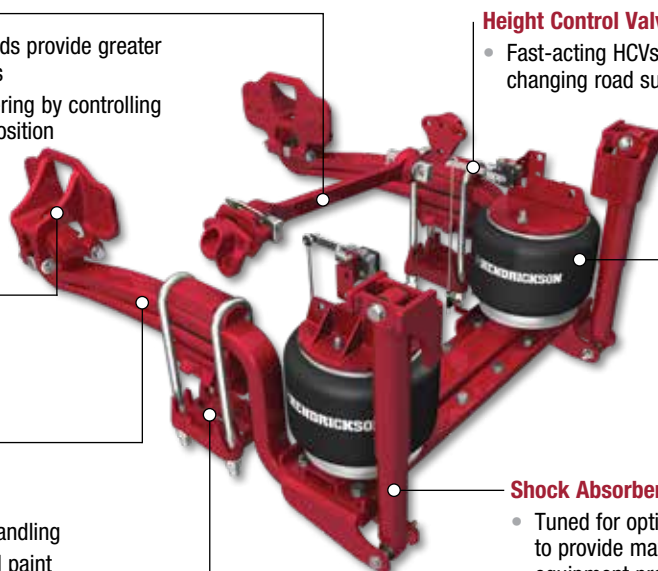
- Adjusts to changing load conditions to deliver superior ride quality

Shock Absorber

- Tuned for optimum damping characteristics to provide maximum driver comfort and equipment protection
- Protects air springs during rebound
- Inboard mounted shock configuration available for increased flexibility

Axle Connection

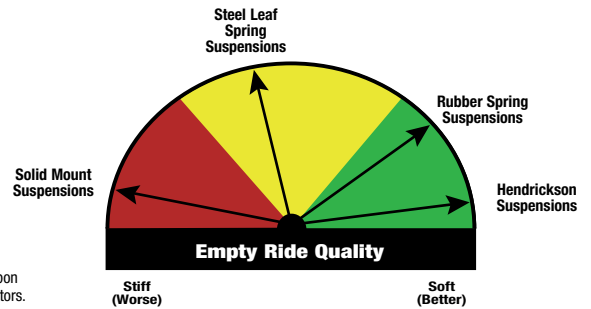
- Designed for secure axle connection and axle integrity
- No welding required



Ride Comfort and Vehicle Protection

FIREMAAX® EX and ROADMAAX® severe-duty rear drive axle air suspension systems provide benefits tailored for emergency vehicle applications. The systems outstanding ride produces superior driver and passenger comfort while helping to protect critical, life-saving equipment and costly electronic components from excessive vibration and road shock. The suspension geometry and air spring design work together to produce low natural frequencies, resulting in a premium ride.

Data is based upon internal testing and/or published specifications. Actual product specifications and performance may vary depending upon suspension and vehicle configuration, operation, service and other factors.

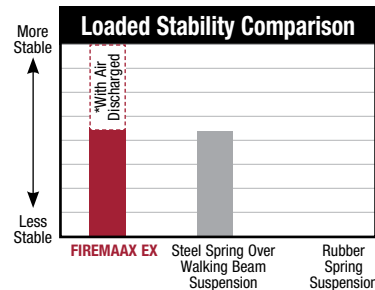


Stability and Handling

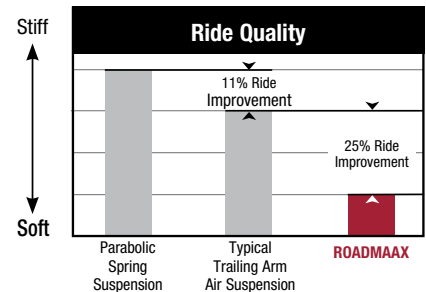
Cast structural beams on FIREMAAX EX form a solid connection with the square cross brace to form a rigid torsion and stabilizer system **without the need for re-torque**. This low-maintenance design delivers greater stability for improved control through the most severe of conditions. Exhausting the air springs further increases stability during operation. ROADMAAX's main support member has an elongated design for optimized roll stiffness. This provides a softer ride and greater protection from the effects of road shock on the chassis, equipment, drivers and passengers.



FIREMAAX EX Stabilizer System



* Air exhausted from suspension system to provide additional stability when dumping or in stationary events where there is a high center of gravity or uneven terrain.



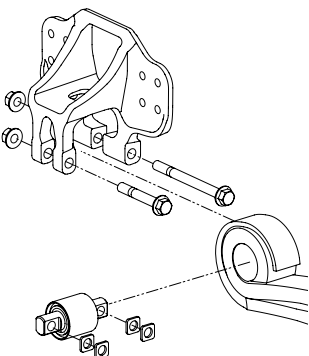
FIREMAAX® EX Maintenance and Durability



QUIK-ALIGN® — Rotating the eccentric collar allows up to 1 inch of axle alignment per side

- **Easy axle alignment** — Hendrickson's proven QUIK-ALIGN® axle alignment system helps save time and money — offers a fast method to ensure proper alignment for improved tire life
- **D-pin axle connection and clamp group** — Reduce stress input into the axle housing by transferring the torsional loads to the integrated stabilizer system, which helps extend axle and joint service life
- **Cast structural beam** — Advanced beams utilize premium materials for high durability and reliability
- **Torque Rods** — Hendrickson TRAAX ROD® torque rods deliver greater durability than conventional rods with premium retained rubber bushings that extend service life and resist walkout

ROADMAAX® Maintenance and Durability



- **Main Support Member** — The extended front limb shifts more load to the air springs and is protected with proprietary zinc-enriched paint for rust protection
- **Bushing** — Durable, maintenance-free rubber bushing delivers quiet operation while reducing road shock and vibration, helping extend the service life of the cab, chassis and body equipment
- **Frame hanger** — Wide footprint bracket distributes load over a larger area for reduced frame stress
- **Axle connection** — No welding required for reduced maintenance
- **Torque Rods** — Hendrickson TRAAX ROD torque rods deliver greater durability than conventional rods with premium retained rubber bushings that extend service life and resist walkout

Hendrickson Rear Air Suspension Systems vs. Proprietary Mechanical Suspensions

Feature / Benefit	FIREMAAX® EX	ROADMAAX®	Proprietary Mechanical (Leaf / Rubber Block)
Design Purpose	Purpose built severe-duty air suspension for Fire and Rescue	Purpose built air suspension with Hendrickson's main support member spring technology	General heavy-duty mechanical suspensions adapted from vocational / commercial use
Ride Quality	Excellent - isolates vibration, reduces crew fatigue, protects sensitive gear	Excellent - wide-stance air springs balance ride comfort and handling	Fair to good - harsher ride transmits vibration and shock
Stability / Roll Stiffness	Up to 2x roll stiffness versus other suspensions; tuned for emergency maneuvers	Efficiently designed for optimized roll stiffness and durability	Moderate to high (rubber block beams) but with harshness and less compliance
Handling Under Changing Payloads	Dual Height Control Valves help maintain ride height and geometry regardless of load	Optional Dual Height Control Valves maintain ride height and extended length main support member provides neutral roll steer for better handling	Handling varies with load - geometry not actively maintained
Equipment Protection	Suspension geometry and air spring design work together to produce low natural frequencies, resulting in a premium ride	Wide stance air springs, shocks and main support members work together, isolate inputs and provide greater equipment protection	More shock loads transferred to body, mounts and electronics
Maintenance	Large volume air springs provide superb ride quality while reducing vibration and harshness to cab, chassis and body equipment for reduced total vehicle maintenance	Robust main support member and low-maintenance design	Simple but subject to spring fatigue, bushing wear and more frequent service
Single Axle Suspension Rating	Up to 31,000 lbs.	Up to 35,000 lbs.	Varies by OEM - typically comparable on paper
Operator Comfort	Superior driver and passenger comfort while helping to protect critical, life-saving equipment and costly electronic components from excessive vibration and road shock	Main support members and shock absorbers tuned for optimum damping characteristics to provide maximum driver comfort and equipment protection	Harsher ride increases driver fatigue potential
Best Fit	Departments seeking maximum ride comfort, roll stability and lower life cycle costs	Departments needing balanced performance across diverse and challenging environments	Departments prioritizing simplicity and ruggedness over comfort and equipment protection

- FIREMAAX® EX and ROADMAAX® capacity ratings apply to only fire and rescue applications
- FIREMAAX EX may be referred to as PRIMAAX® EX by some OEMs
- Above data is based upon internal testing and / or published specifications

Actual product performance may vary depending upon vehicle configuration, operation, service and other factors.
All applications must comply with applicable Hendrickson specifications and must be approved by the respective vehicle manufacturer with the vehicle in its original, as-built configuration.
Contact Hendrickson for additional details regarding specifications, applications, capacities, operation, service and maintenance instructions.

Call Hendrickson at 630.910.2800 or 855.RIDERED (743.3733) for additional information.



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