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Horstman

Horstman Hydrogas® Suspension

Horstman Hydrogas® Suspension uses high pressure nitrogen gas and an integral oil damper.

Product Overview

Developed by Horstman in the 1980s for a range of vehicles, Hydrogas® was designed from the outset to replace torsion bars and provided a revolutionary increase in cross-country mobility.

This allowed the vehicle designer to overcome the internal packaging constraints, vulnerability to mine blast and crew exposure to the fragmentation that all result from torsion bars.

The hydro-pneumatic suspension uses high-pressure nitrogen gas and an integral oil damper. Robust environmental seals make the Hydrogas® a sealed module suitable for robust environments.

Proven in Challenger MBT, CrARRV, AS90, Terrier, AS90, K9/K10, Horstman has continuously upgraded Hydrogas® with the latest sealing and friction coatings to improve system life, crew comfort and firing stability.



Horstman Hydrogas® Suspension

Feature

Torsion bars removed from the inside of vehicle

Rising Rate Spring and improved damping

Independent suspension mounted externally

Lower vehicle height / survivability

Integrated system approach saves mass

Benefit

Additional space for equipment, ability to have a floor mounted emergency escape hatch. Reduced fragmentation effects from secondary projectiles from mine blast or IED blast

Hydrogas® get stiffer closer to the ends of travel and so reduces shock loads on the crew and vehicle. Crew comfort improves, absorbed power reduces and vehicles can drive faster

Damaged units can be replaced more easily than bent or seized torsion bars

Ability to lower the turret basket and reduce the height of the vehicle gives improved survivability (lower silhouette). The saving of the hull side armour is typically 100-500kg

Simpler than a torsion bar system which needs separate road arms, bump stops, dampers, torsion bar attachments and protective tubes; eliminates the need for multiple torsion bar spring rates as wheels individually adjusted by gas pressure to suit payload or performance

Options

- Selectable damping
- Variable damping, up to full hydraulic lockout
- Dual spring / secondary volume

Accessories

- Charging kit – Hydrobooster™
- Electronic control unit (ECU)
- Wheel hub, light weight wheels, wear guards, bump stops