tinsley bridge group

Innovative Engineering for a Demanding World

Design Led Technologies

Tinsley Bridge has been at the forefront of stabiliser bar and leaf spring technology for over 150 years and we were first to develop the parabolic leaf spring technology which is now fitted to over 80% of truck suspensions in the world. This innovative spirit still drives the company today.

We are the largest UK manufacturer of truck stabiliser bars and torsion bars to the OE commercial vehicle sector and one of the top manufacturers of vehicle suspension components in the world.

We produce a wide range of anti-roll bars and torsion bars, and have the specialist capabilities required to manufacture large diameter vehicle suspension components required for truck, rail and defence vehicle applications.





Images: General Dynamics Land Systems Force Protection Europe

- Torsion Bars
- Applications include:
- Stabiliser Bars
 Anti Roll Bars
- Warrior Infantry Fighting Vehicle
- Foxhound light protected patrol vehicle
 - CVR(T)
 - FV430 Bulldog Troop Carrier



Image: Trevor Sheehan/BAE Systems

FXTRALite™

Our innovative Extralite[™] torsion bar upgrade for the Warrior & CVR(T) Defence vehicles met an Urgent Operational Requirement for the Ministry of Defence. The Extralite[™] torsion bar helped achieve a significant improvement in suspension performance, and the Tinsley Bridge contribution was widely recognised by UK Government ministers, the MOD and in industry innovation awards.

UltraStrength 220 incorporates innovative material technology developed to operate at higher loads, reduce weight and increase durability for defence, road and rail applications. Vehicle performance benefits include:

- Increased load capacity whilst maintaining durability
- Improved off-road performance by improving ground clearance and increased relaxation resistance
- · Improved fatigue durability, in some cases more than double the life

With funding support from the Technology Strategy Board, engineers at Tinsley Bridge have worked with the Materials and Engineering Research Institute at Sheffield Hallam University to develop an innovative new microstructure in UltraStrength 220 material grades achieved by nano technology changes in heat treatment processing.







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Case Study

Meeting an Urgent Operational Requirement

Team: Tinsley BridgeClients: BAE Systems / Ministry of DefenceProject: Torsion bars for the British Army Warrior Infantry Fighting Vehicles

Tinsley Bridge was approached by BAE Systems to see if there was a way to raise ride height of the British Army Warrior Infantry Fighting Vehicle at its increased protection weight, with minimal component changes and with the need to maintain mobility. There was a tight timescale as ongoing deployment necessitated a fast upgrade.

In a development project between Tinsley Bridge and BAE Systems, a new high-strength steel, Extralite[™], was proposed to replace the standard steel suspension torsion bar. The steel is unique to Tinsley Bridge and was initially developed for use in high strength leaf springs where the steel was used mainly in 'tension'.

Development and testing of the torsion bars was completed in less than five months; a time frame which included extensive field trials conducted by the Army. The vehicle now features improved cross-country mobility, ride and handling to work at its best in the challenging Afghan terrain, and the extra height also improves crew protection from mine blast.

The Warrior was the only tracked infantry vehicle in theatre and so can get to places that wheeled vehicles cannot, enabling the infantry to engage the enemy more effectively in difficult terrain.

The improvements to the vehicles have increased the protection of troops in IED strikes.

Minister for Defence Equipment and Support, Peter Luff: "Warrior vehicles are doing a tremendous job in Afghanistan and these numerous improvements are already proving their worth in theatre. This vehicle is extremely versatile, offering good mobility and high levels of protection for its crew. It also allows troops to get out into communities safely, maintain areas and provide reassurance to the local population."

"The family-owned Tinsley Bridge Group may be a long way from the front line in Afghanistan, but their innovative work means the Warrior vehicle will be tough enough to cope with the rockiest terrain and protects its crew from Improvised Explosive Devices".



Image: 3Mercian



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