

# Lowering Costs for Auto Makers

by:

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**Vehicle makers are driving down their costs for rework and labor by choosing a fastener that solves cross threading problems.**

Mercedes Benz has joined its North American counterparts at DaimlerChrysler by beginning the implementation of MATHread<sup>®</sup> fasteners as a standard for their European operations. MATHread<sup>®</sup> fasteners have a proven track record for reducing costs by eliminating reworks for cross threading, and labor time associated with hand starting.

Early in 1996, both DaimlerChrysler and General Motors Corporation (GM) began to realize the cost savings potential of the MATHread<sup>®</sup> design. After four years of success, GM chose to make a MATHread<sup>®</sup> product its worldwide standard in 2000. Virtually all new designs from GM now specify the versatile MATpoint<sup>®</sup> in the design phase.

Similarly, after numerous cost-saving uses in its most difficult applications, DaimlerChrysler made MATHread<sup>®</sup> its North American standard in 2002. And now the savings continue with Mercedes Benz.

## An Innovative Fastener Design Success Story

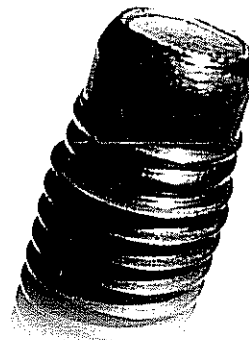
They say that necessity is the mother of invention. A decade ago, the MATHread<sup>®</sup> design was invented to solve what had been the greatest challenge of fastener assembly, namely cross threading. The necessity to eliminate the expensive, disruptive assembly failures that result from cross threading and galling during installation had existed since the beginning of threaded fastener assembly.

After its first high-volume production trial, word quickly spread throughout the automotive industry that the innovative MATHread<sup>®</sup> design had proved to completely eliminate the cross threading/galling issue.

As usage of the design rapidly proliferated throughout the most difficult and challenging assembly problems in the industry, several things quickly came to light. Not only did the parts completely eliminate the problems the inventors had intended to solve, but the fastener also proved to be so robust that they eliminate virtually all of the major assembly problems associated with externally threaded fasteners. Here are some of those MATHread<sup>®</sup> fastener benefits:

- They cannot be cross threaded or jammed during assembly operations.
- They are not affected by excess paint in fastener threads.
- They are not sensitive to assembly tool speed.
- They correct off-angle installations and force component alignment (without thread damage).
- They improve operator ergonomics by reducing repetitive stress.

The MATHread<sup>®</sup> design was developed to solve what had been the greatest challenge of fastener assembly—cross threading.



## Focus on Cost Reduction

One of the first applications of the MATHread<sup>®</sup> design by a USA automaker produced documented savings of more than US\$1 million annually—for just one part. Similar cost savings have now become very common.

In 2003, a major USA automaker conducted a Six-Sigma study, which documented that the MATHread<sup>®</sup> fastener design eliminated approximately 97% of the company's ongoing assembly problems. And the elimination of these problems resulted in annual prevention of some 53,600 failures in just one assembly plant.

These and many other similar successes launched a product that would revolutionize the assembly of fasteners. MATHread<sup>®</sup> fasteners have now fixed costly assembly problems for all the major automotive companies as well as many nonautomotive companies worldwide.

## Phenomenal Growth

On an industry-wide basis, savings resulting from the elimination of assembly failures, repairs, scrap, downtime and warranty service have driven the use of MATHread<sup>®</sup> fasteners at a phenomenal rate.

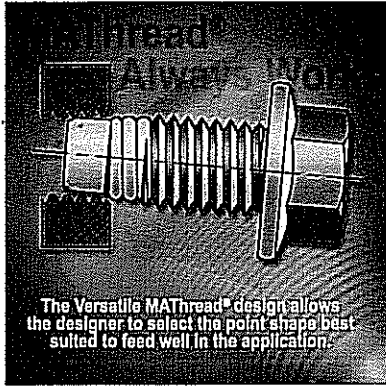
Now ten years after its development, there are more than 2000 individual part numbers with almost 6 billion installations, and this is growing at an average rate of 48 new installations per second.

The patented design, licensed by MATHread<sup>®</sup>, Inc., is manufactured by more than 50 licensed fastener manufacturers on a worldwide basis.

## Specifications

MATHread<sup>®</sup> fasteners are currently being manufactured in sizes ranging from M3 to M28. However, there are no size restrictions for these components. The type of fastener head

### Axis Misalignment



How the MATHread® functions to provide consistent and reliable performance.

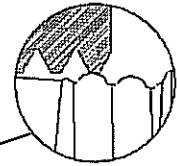
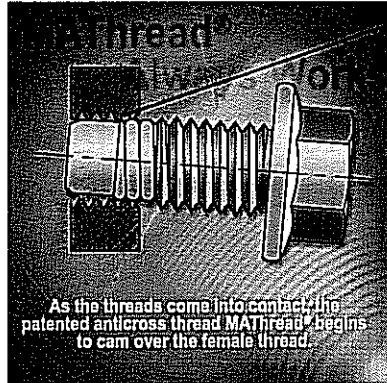
style is irrelevant to their manufacture, and all existing finishes can be accommodated.

Additionally, these fasteners can be manufactured from all materials including soft copper.

To receive additional technical specifications on MATHread® fasteners that eliminate the cost of rework for cross threading and the labor time associated with hand starting, contact the author.

FTI

### Threads Cam Into Alignment



### Threads Drive Normally

