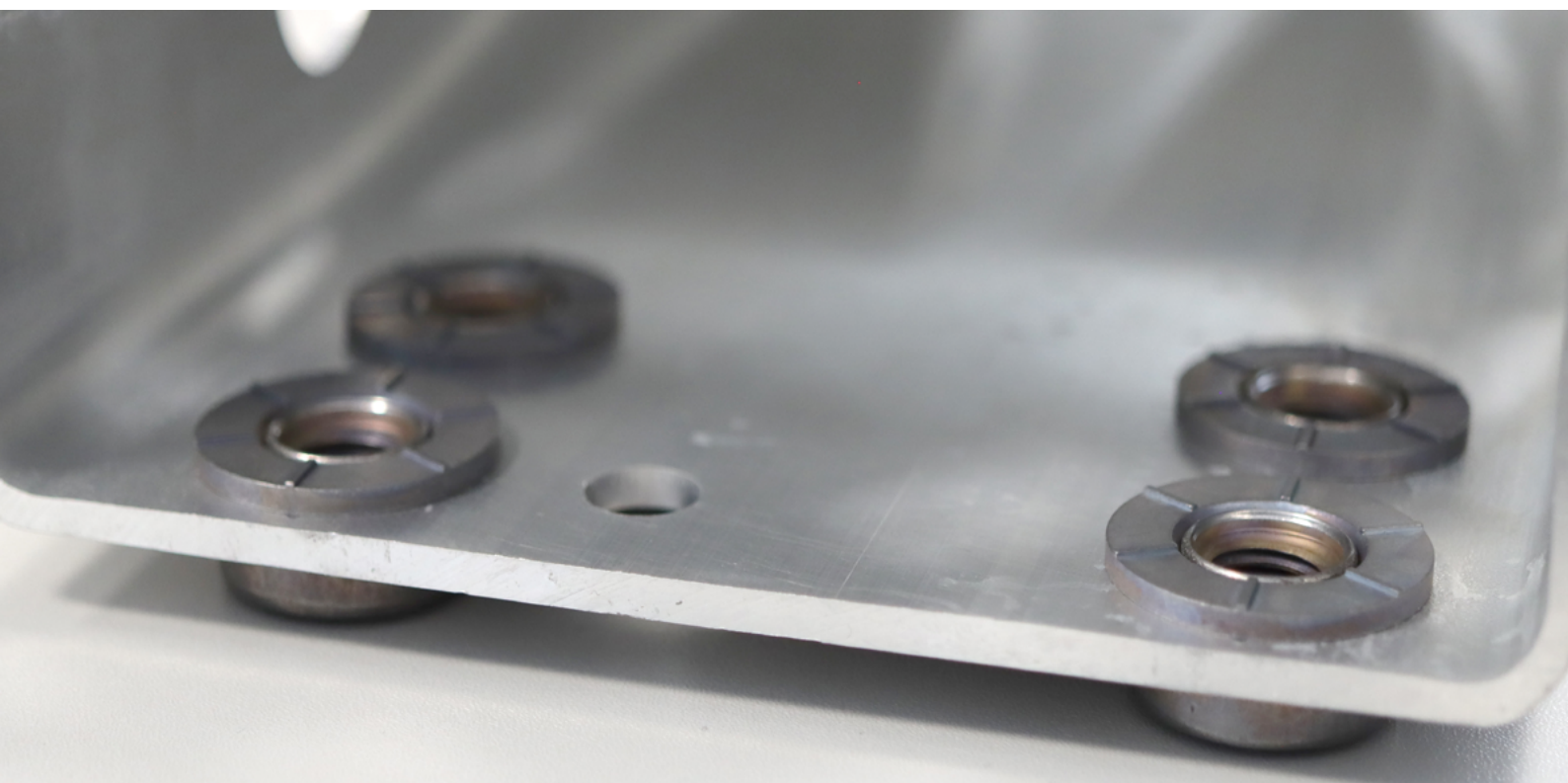


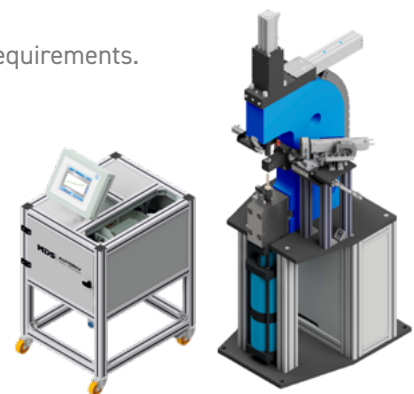


Combination of Rivet Nut and Washer

- ▶ For a wide range of functions and applications
- ▶ Ultra-high-strength structural connection

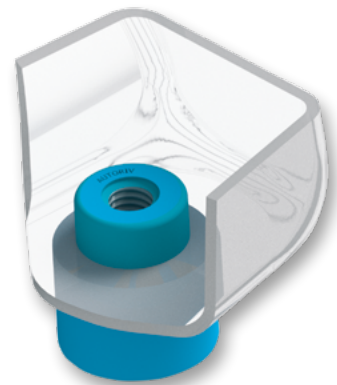


- ▶ A single-step process replaces three work steps.
- ▶ Maximum torque, push-out, and pull-through forces.
- ▶ Fully adjustable dimensions of the nut and washer depending on requirements.
- ▶ Fully automated, reliable process.



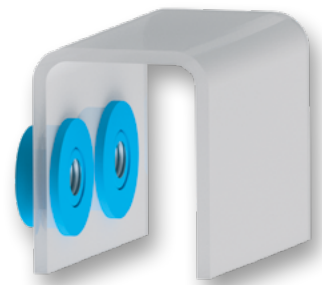
Areas of Application

- ▶ Installation in very tight spaces
- ▶ For tightly toleranced clearances between bolted components
- ▶ As a mounting surface for shock absorbers and tailgates
- ▶ As a frame rail / crash box combination
- ▶ As a connecting thread for thick sheet metal where beading is not possible
- ▶ For thick sheet metal where protrusion is not possible
- ▶ As a form closure or anti-twist lock for attached components
- ▶ As a form closure to counteract displacement forces
- ▶ For battery-carrier mounting
- ▶ As a stop surface
- ▶ As a spacer for tight tolerances
- ▶ As a chemical insulator between steel and aluminum
- ▶ As sheet metal reinforcement for thin sheets

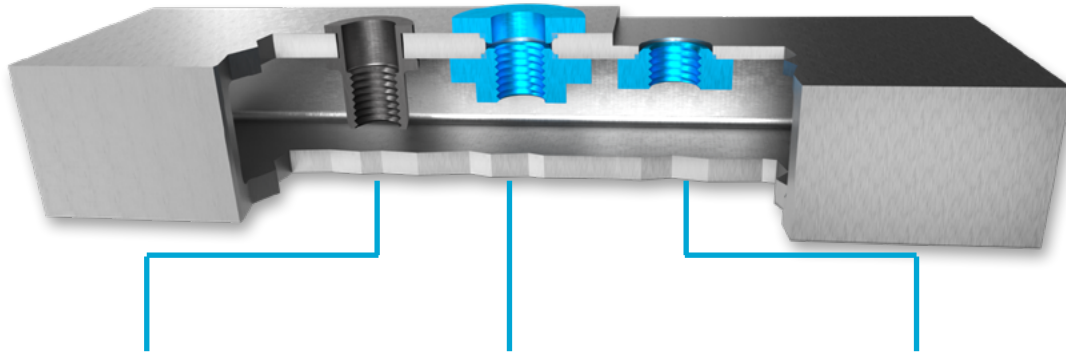


Advantages

- ▶ Structural connection with high torque, push-out, and pull-through forces
- ▶ A single-step process covers three process steps
- ▶ This results in cost savings
- ▶ Fully automated and reliable processing
- ▶ Fast cycle times and high availability
- ▶ Freely adjustable dimensions of the nut and washer
- ▶ Custom solutions available



Comparison: Nut-Spacer Combination vs. Blind Rivet Nut



Blind rivet nut

Clinch nut and spacer

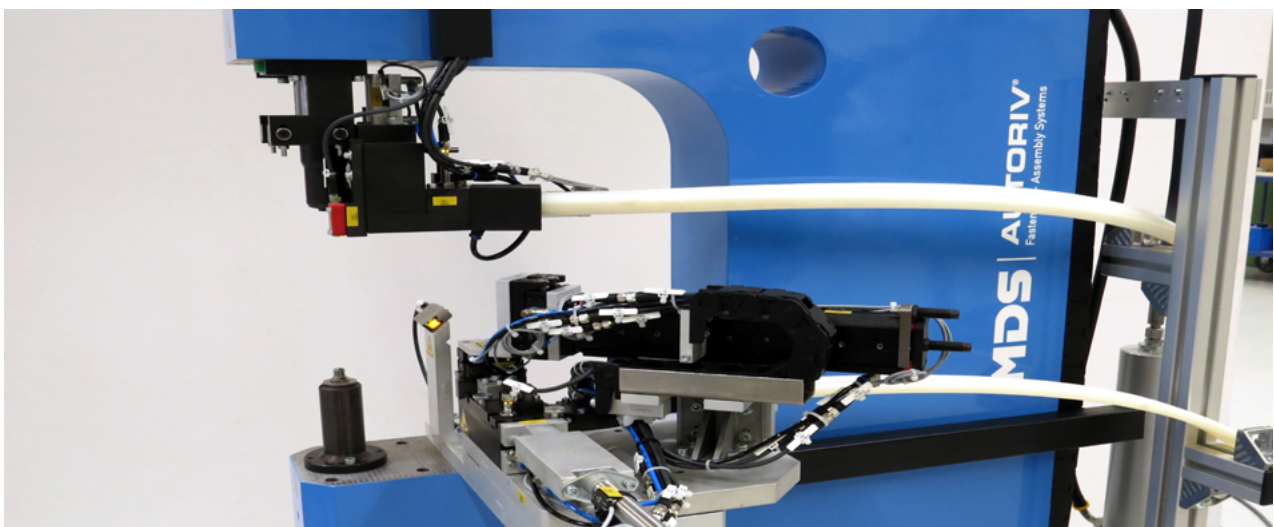
Clinch nut without spacer

Limited strength and low pull-through
 -due to lower material hardness of a blind rivet nut
 -due to less loadable small rivet bulge
 -because there is no preload between the metal sheets
 -as there is a risk of setting behavior within the connection

High strength and high pull-through
 -due to highly tempered nut
 -due to larger and higher nut dimensions
 -because regular preload is built up between the metal sheets
 -because of higher dimensions, no setting behavior within the connection

Also used as standalone fastener with the same strength advantages

Assembly System for the Nut-Washer Combination



Fasteners



Assembly Systems



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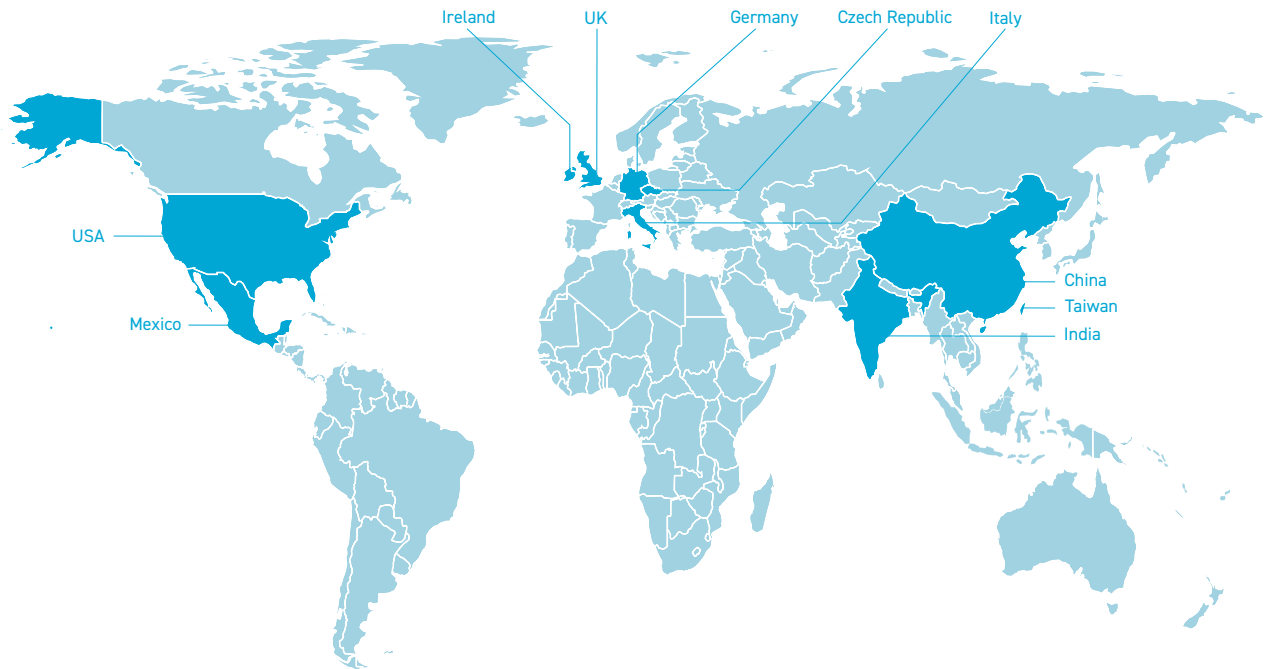
AUTORIV: About Our Company

MDS Maschinen- und Werkzeugbau GmbH & Co. KG has now become MDS Germany GmbH and joined the PennEngineering® Group.

This acquisition represents a key milestone in our long-term global growth strategy, enabling us to expand our product portfolio and offer an even wider range of tailored solutions and services.

Our customers are from the sheet metal processing industry, mostly from the automotive sector. We supply automotive manufacturers (OEMs), Tier1, smaller tiers and suppliers.

We are also present with our production automation systems in the industries of trucks, white goods, heating, ventilation and air conditioning systems (HVAC), electronics, and agricultural machinery. Our main markets are Europe, North and Central America.



AUTORIV: A Brand of the MDS Fastening Systems

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