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## Comprehensive Manufacturing Capabilities in the FASTENER INDUSTRY

In the fastener industry, having access to various manufacturing techniques is essential for versatility, cost efficiency, and quality. Different methods, such as hot forging, cold forming, stamping, and machining, allow for the production of a wide range of components with specific material properties, precision, and surface quality. This diversity enables companies to adapt to varying design requirements, optimise production costs, and meet stringent quality standards, ultimately ensuring the ability to respond effectively to market demands and technological advancements.

Norm Fasteners excels in diverse manufacturing techniques that enhance both the strength and precision of metal components and offers robust and versatile manufacturing solutions tailored to meet the highest standards.

**Hot forging** results in a more homogeneous metal structure by realigning the grain structures within the metal through heating and shaping. This process significantly enhances the material's overall strength and durability. The technique improves the metal's grain structure, which boosts the mechanical properties and strength of the forged parts. Moreover, the thermal processing involved in hot forging minimises the chance of of cracks, further increasing the material's durability.

**Cold forming** is a metalworking process that shapes metal at room temperature using highpressure dies, preserving the material's original properties without the need for heating. This method is highly effective for producing parts with complex geometries and excellent surface quality. Additionally, cold forming increases the mechanical strength of components without compromising the material's structure. It is ideal for high-volume production, providing cost-effective and high-quality fasteners.

**Stamping** and sheet metal forming are ideal for high-volume production runs, offering cost reduction and increased capacity. Progressive dies, aligned with lean manufacturing principles, integrate multiple processes seamlessly, maximising efficiency and minimising waste. As a precision manufacturing method, stamping ensures high accuracy and repeatability, making it a preferred choice in industries like automotive, where consistent quality is crucial. This precision enhances product quality and ensures each production cycle reliably meets strict specifications.

**Machining** is a precise technique for producing high-accuracy components in various shapes and materials. It offers tight tolerances, excellent surface finishes, and the ability to create complex geometries. The process minimises waste through accurate material removal and supports both small-batch and large-scale production.

By combining these methods, we also optimise production efficiency and cost-effectiveness. This comprehensive approach allows us to reinforce our commitment to excellence and innovation in the fasteners industry.

