

What is torque density?

In pursuit of improved design and performance of mechanical systems, designers, manufacturers, and end users must consider numerous parameters and scenarios. One often overlooked parameter is torque density. While not as commonly considered as other measurements, torque density can help designers make smarter decisions by focusing on “where the work gets done.”

Torque is defined as the measure of the turning force on an object being rotated, such as a bolt or an automotive flywheel.

Torque density expresses the ratio of torque capability to volume, in units of Joules per cubic meter or foot-pounds per cubic foot.

In short, torque density measures the torque-carrying capability of a component in a given weight and space envelope.



Why is Torque Density important in machine design?

In the design of mechanical systems, torque density can be used to make smarter design decisions. When considered during the concept evaluation stage of mechanical designs, torque density can be used to evaluate the potential success of various concepts. Multiple design solutions might be available, but when space is limited, the relative torque densities of the solution may help determine which design is most efficient footprint.

[Click here](#) to learn more about Torque Density in this whitepaper.



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