

PRESS RELEASE

New Generative Design tool ‘thinks like an engineer’ enabling designers to explore ideas never thought possible and perfect designs rapidly

Newport Beach, CA, July 1st, 2020 – [MSC Software Corporation \(MSC\)](#), a global leader in Computer-Aided Engineering (CAE) simulation software and services and part of Hexagon's Manufacturing Intelligence division, has released [MSC Apex Generative Design 2020](#), a pioneering tool that enables engineers to explore new approaches and optimise any part of their design in a single step to develop innovative products up to 80% faster than conventional approaches.

MSC Apex Generative Design addresses product development pressures to meet shrinking budgets and rapid time-to-market by generating lightweight and smoothed preliminary component concepts based on just the engineering goals. It does away with the iterative process of eliminating unsuitable candidates, freeing up the engineer's time so they can use their expertise to explore the design space and find more optimal and novel solutions by fine tuning pre-vetted, manufacturing-ready designs.

Its uses span every imaginable industry – regardless of the application. It enables engineers to innovate more quickly, producing the perfect design in the same amount of time it would have taken them to create, test and discard a first prototype using conventional tools and workflows. With MSC Apex Generative Design:

- A surgeon can create a smarter, latticed implant design that's pre-validated for additive manufacturing and the same weight as the bone it replaced, improving biocompatibility to encourage muscle attachment and patient comfort.
- The aerospace engineer can redesign a product part-by-part for lightweighting, confident in maintaining the same performance and safety while improving efficiency.
- An automotive designer can build a motorcycle chassis that is 56% lighter than previous iterations, improving range while saving on fuel consumption.



- Manufacturers can fully exploit the capabilities of additive manufacturing and optimise their designs to enable first-time-right part production for entirely new products.

Thomas Reiher, Director of Generative Design, MSC Software, said: “Designing an optimal product that fully exploits the available techniques is such a convoluted process today, that designers have to compromise. Designers’ eyes light up when they use MSC Apex Generative Design because it thinks like them, improving parts with intelligent engineering decisions – only much faster.”

“Our users have reported slashing their design time by 80% by reducing the number of individual tools and interventions, automating the optimisation process and streamlining their workflows. They start producing products that for the first time they have been able to optimise with design, performance and cost all tailored to their technical and commercial requirements.”

Despite this power, MSC Apex Generative Design can run on a normal laptop to generate initial candidates within an hour, and produce a final design within a matter of hours. Adding to its accessibility, the tool is also now equipped with an intuitive interface, opening its capabilities up to designers and engineers without specialised knowledge of computer aided engineering. Design goals can be set up directly, or set against an existing design from Computer Aided Design (CAD) or directly from CAE models.

MSC Apex Generative Design’s ability to anticipate design issues that would otherwise require redesign much later in the process is particularly important for new manufacturing practices such as additive manufacturing. 3D printing teams can use the solution as a Design for Additive Manufacturing (DfAM) tool. It performs topology optimisation and intelligent smoothing in a single step, producing parts with low distortion risk and ‘bionic’ printable geometries. The resulting parts are automatically designed for performance, balancing the material use with strength requirements and stress distribution.

Users can link MSC Apex Generative Design with industry-leading manufacturing simulation tools Simufact Additive for metals and Digimat AM for polymers to reduce build failures and make optimal use of materials at every step.



The new tool was first announced in November 2019. This first major release introduces new controls that make it easier for designers to adjust the complexity of the generated designs and how much the fixation points can be reduced. It also exploits many productivity benefits of the underlying MSC Apex platform, for example direct export of engineered models (mesh) to Computer Aided Design (CAD) formats so that generative design optimisation can be used within common CAD/CAM manufacturing workflows.

For more information visit: www.mscsoftware.com/product/msc-apex-generative-design

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Hexagon is a global leader in sensor, software and autonomous solutions. We are putting data to work to boost efficiency, productivity, and quality across industrial, manufacturing, infrastructure, safety, and mobility applications.

Our technologies are shaping urban and production ecosystems to become increasingly connected and autonomous – ensuring a scalable, sustainable future.

MSC Software, part of Hexagon's Manufacturing Intelligence division, is one of the ten original software companies and a global leader in helping product manufacturers to advance their engineering methods with simulation software and services. Learn more at mscsoftware.com. Hexagon's Manufacturing Intelligence division provides solutions that utilise data from design and engineering, production and metrology to make manufacturing smarter.

Learn more about Hexagon (Nasdaq Stockholm: HEXA B) at hexagon.com and follow us [@HexagonAB](https://twitter.com/HexagonAB).

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