HEXAGON

Brochure

# REcreate

Reverse engineering for smarter manufacturing

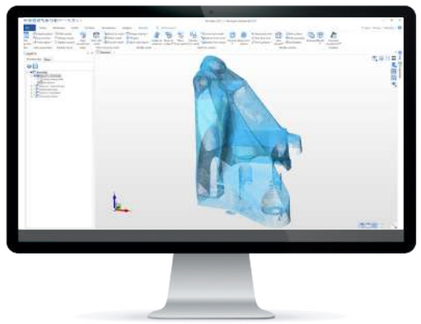
# Recreating reverse engineering

Reverse engineering plays a critical role in product design, development, and production. Scanning and probing a physical part with metrology equipment enables designers and manufacturers to quickly capture the required data to model new products or repair and replace old ones.

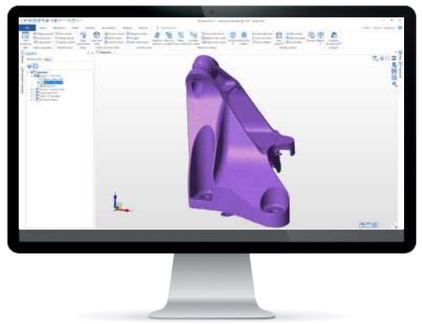
The ease, speed and accuracy that parts can be re-engineered and manufactured depends on the power and capability of the reverse engineering software.

REcreate reverse engineering software draws on Hexagon's design and engineering, production, and metrology expertise to deliver exceptional ease-of-use and performance.

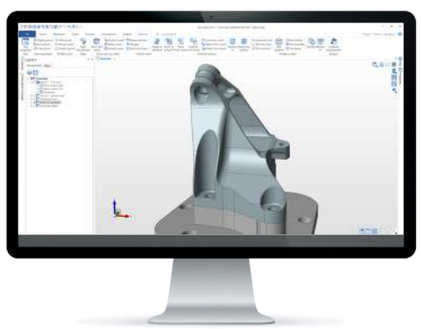
Highly versatile, REcreate can slot into any existing production workflow. Designed to work with a wide range of third-party systems and data, REcreate can operate as either a full end-to-end reverse engineering solution, or as a complement to existing technologies.



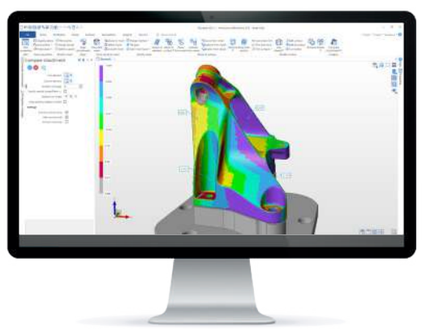
Point cloud



Faceted mesh



Reverse Engineered CAD model



Validation of CAD model

## Versatile part design

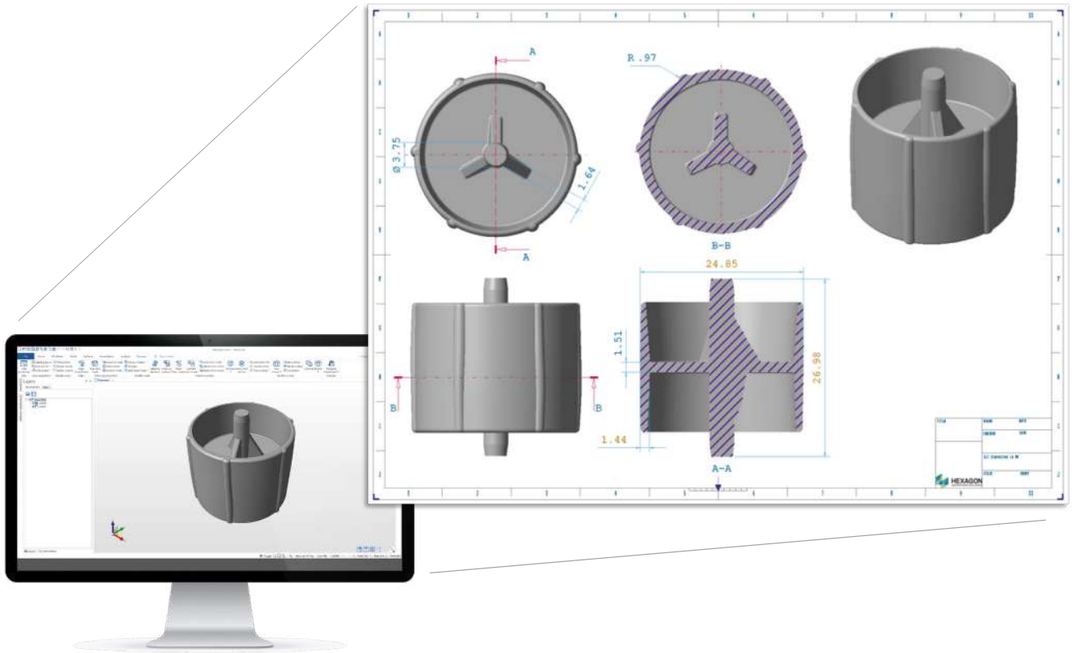
REcreate takes the complexity out of reverse engineering to create a smarter, faster and more flexible design and production environment that makes it easy to:

- Create CAD data for parts when none exists
- Use physical parts or prototypes to inform design innovation
- Ensure a precise fit for new components developed for existing products
- Update design files to reflect changes that occurred during manufacturing or prototyping
- Repair or manufacture legacy parts

# CAD/CAM connectivity

All design and manufacturing environments vary. That's why REcreate comes with the versatility and intelligence to work with a wide range of CAD/CAM data and technologies. REcreate ensures that data transfer is easy and of the highest quality.

With a full CAD suite included, REcreate stands apart from traditional reverse engineering solutions. This means it a standalone CAD system, with no dependencies on other applications, which can create complete and manufacturable CAD models as well as 2D engineering drawings. These are essential when working with suppliers who work heavily in 2D.




## REcreate's capabilities include:

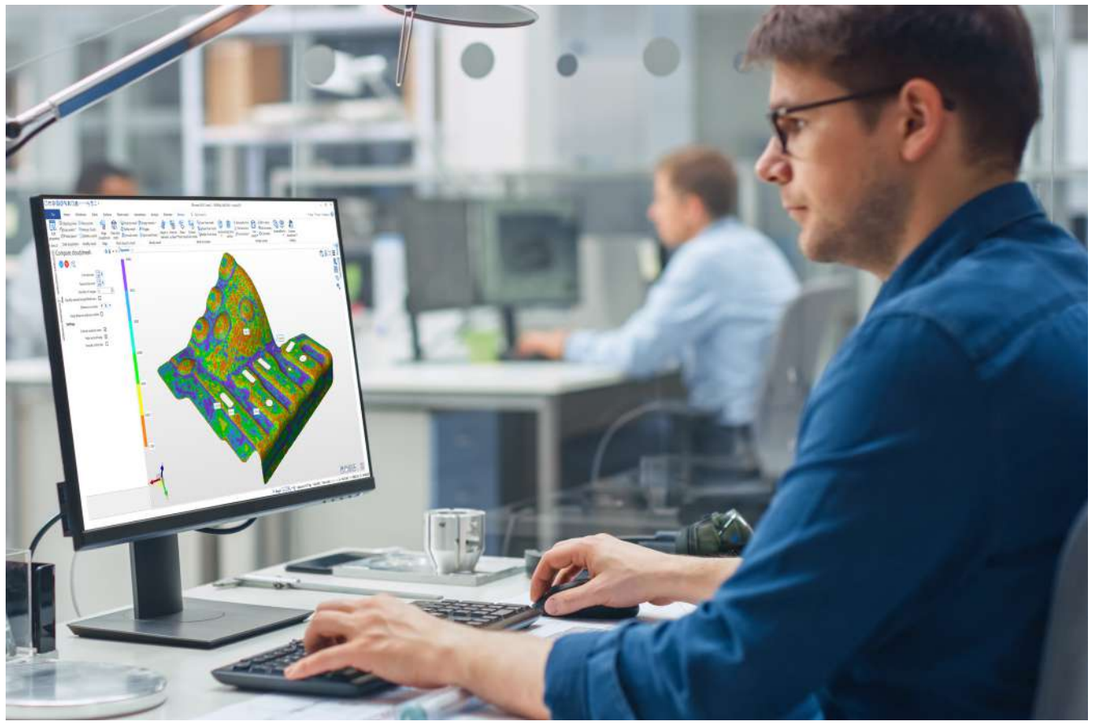
- Acquiring data by connecting directly to scanning devices or by importing mesh, solid, surface or point cloud data
- Creating an accurate CAD model, even when using fragmented data.
- Using CAD models to make 2D drawings for processes that do not use CAM data
- Creating manufacturable parts to send straight to CAM
- Transferring data to any other CAD/CAM system

# A single design environment

REcreate strips away complexity so that designers can create 3D models in a single design environment using a combination of traditionally incompatible data.

With REcreate, you can seamlessly switch between using point clouds, faceted meshes, solids and surfaces. This makes it easy to create high quality, geometrically accurate, solid or surface models – all within a single environment. At the same time, it also enables direct modelling, giving users much greater flexibility to redesign a part's geometry, including modifying previously created parametric designs, without having to worry about feature dependency.

Any created part must be designed to be manufacturable and cost-effective. The powerful suite of analysis tools available in REcreate enables users to design for their manufacturing process. By interrogating 3D models to analyse the draft, curvature, thickness and much more, REcreate makes this process smooth and efficient.



# Combining high performance with ease of use, across any application

RECreate offers a modern and intuitive, user interface which makes it easy to learn and to become an expert in.

It maximises the flexible use of applications, CAD/CAM environments, data formats and design preferences by:

- Adapting readily to each customer's individual workflow and specific application requirements
- Using JavaScript to give users the ability to define how RECreate interacts with their ecosystem or how the user interacts with the product so they can drive operational efficiencies

# The digital thread

RECreate enables teams across design, production and inspection to share a single, consistent thread of data, that can run from the initial scan of the physical part, through the CAD and CAM systems, into metrology systems and back again. Working with a single shared source of truth gives users the confidence and flexibility to innovate.

With RECreate, design engineers have the freedom to use CAD in conjunction with Hexagon's simulation and modelling software to simulate the impact of multiple stresses and strains on the part. They can then optimise the part digitally and inform the CAD of changes before going to the expense of creating a physical prototype. Not only are design and production processes much faster, being able to quickly explore and test new ideas opens up new innovations, while reducing waste.

Once a reverse engineered part moves from digital design into physical production, Hexagon's metrology technologies can then capture key data that informs real-time improvements to engineering and manufacturing processes.

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.

Hexagon's Manufacturing Intelligence division provides solutions that utilise data from design and engineering, production and metrology to make manufacturing smarter. For more information, visit hexagonmi.com.

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