
3DSYSTEMS
Geomagic
Freeform®
Organic Design for Manufacturing

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Geomagic® Freeform® provides the creative latitude you need to create intricate, complex, sculptural 3D models and prepare them for prototyping and manufacturing. From a comprehensive toolset that can be used to design all types of sculptural products, to specialized features that allow you to identify and resolve potential manufacturing issues early in the design process, Geomagic Freeform allows you to retain artistic control while avoiding production surprises and costly mistakes.

The world's leading companies in toys, medical implants, consumer products, jewelry, home decor and more, rely on Freeform as a key component in their digital pipelines to enhance design quality, streamline workflows, increase productivity and accelerate time to market.

Model directly and intuitively

Freeform offers you a significantly faster modeling process and a dramatically reduced learning curve for complex 3D modeling. Using a Geomagic haptic device to drive the software, you can sculpt a digital model with the same hand movements and sense of touch as if you were modeling a real physical object. Push, pull, carve, tug and smooth model features—you can even pop inside your model to sculpt design features from the inside out. With Freeform, you have the speed and sensation of hand sculpting with all the advantages of a digital workflow.

Choose the right sculpting tools for the task at hand

Freeform's comprehensive toolsets allow you to create highly detailed organic models and sculptural details, and then easily combine them with engineered forms or traditional CAD models. With Freeform, you can design using up to four distinct modeling representations: voxels (digital clay), NURBS, subdivision surfaces (SubD) and polygonal meshes. Rather than limiting you to using just one or two, with their associated constraints, Freeform's multi-representational modeling environment gives you more choices, enabling incredibly fast and flexible workflows.

Freeform also includes detailing tools to create and apply dimensionally controlled textures and patterns within seconds, and tools to perform powerful Boolean operations, deformations, dimension sketches, extrusions and more. The combination of working seamlessly with different modeling representations and Freeform's direct-modeling toolsets unleashes your creativity, reduces modeling time and facilitates better designs.

Create production-ready models

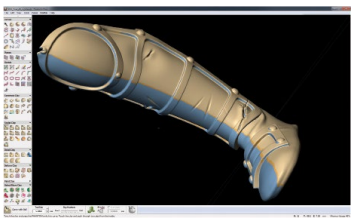
Freeform provides the tools you need to create manufacturable designs and mold inserts, such as draft analysis, no-fail shelling, thickness analysis and complex parting surface development—allowing you to decide how to modify your designs prior to production. When your designs are complete, Freeform delivers watertight models that are ready for rapid prototyping, CNC machining, additive manufacturing or other traditional production workflows.

Initial sculpt in Freeform

Machining the mold insert

Exploded view

Mold insert detail

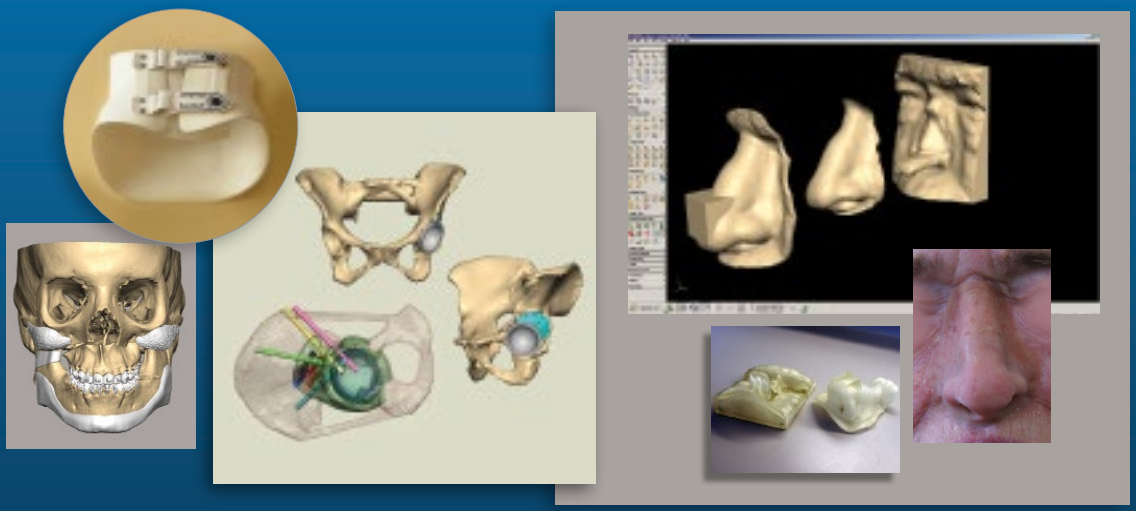


Dynamic analysis to identify optimal pull direction; draft problems identified and ready for fixing

Manufactured part

Final assembled game piece

Design medical models with speed and precision



With Freeform's general toolset, you can quickly and easily design patient-specific implants, prosthetics and surgical guides. Freeform fits into your design workflows and allows you to rapidly modify STL data from scans and converted DICOM, automatically align different data sets, design molds and more.

Powerful and flexible workflows

IMPORT

- 2D art: Jpg, BMp, png, p SD
- polygonal mesh: STL, OBJ , pLy
- 2D curves: AI, ʇg ES, STE p, XT, XB
- CAD Solids and Surfaces: ʇg ES, STEP, XT, XB
- SubD: OBJ

PRIMARY INDUSTRIES

- Toys, Miniatures & Collectibles
- Medical Implants, prosthetics & Surgical Planning
- Consumer products
- Jewelry, Medallions & Coins
- Trophies & promotional Items
- Footwear
- Film & Entertainment
- Fine Art & Sculpture

WORKFLOW EXAMPLES

- Model from scratch; create multiple design iterations
- Clean up and modify scan data (re-sculpt, sharpen, deform and scale)
- Add sculptural details to CAD models
- Import models designed in other packages (e.g. animation) and turn into manufacturable models
- Create and apply custom textures and patterns
- produce watertight meshes for rock-solid rapid prototyping and production
- Analyze and resolve potential production issues, such as undercuts
- Create moldable parts
- Design mold inserts
- Shelling and complex blends on CAD models
- Create custom medical implants, prosthetics and splints
- Surgical planning and guides
- Convert sculptural models to CAD
- Create libraries of parts and rapidly *combine using Boolean unions*

EXPORT

- CAD/CAM for further engineering and manufacturing: IGES, STEP, XT, XB
- Additive Manufacturing: STL, OBJ, PLY
- STL CAM: STL, OBJ
- Wax printing for casting: STL, OBJ
- Digital collaboration and review: VRML, Actify 3D, Quicktime VR
- Annotated models
- Rendered models for presentation
- Digital content creation: OBJ and UV maps

More information, including a comparison of Freeform, Freeform Plus and Claytools, in addition to Geomagic Touch™ and Geomagic Touch™ X descriptions and comparisons, is available at www.geomagic.com.

WORLD-CLASS SUPPORT

To help keep you productive, your Freeform purchase includes a first-year support contract, giving you access to Freeform software and Geomagic hardware expertise and resources. Customers with active maintenance contracts receive hardware repair, Freeform software version upgrades and maintenance updates.

We' d like to thank the following customers for allowing us to feature images of their products in this brochure: Couture-collection door knob, Baldwin Hardware Corporation; First Doctor maxi bust, Designworks Windsor Ltd. and Titan Merchandise; Gillette Fusion™ razor, The Gillette Company, part of the P&G family; Wyrd Miniatures Malifaux Thunder Torakage game piece and Ex Illis knight game pieces, g host Studio; 'In Flight' gemstone ring set, Llyn Strong Fine Art Jewelry, llynstrong.com; diecast car, The Outside Digital Art and Design, theoutside.biz; pope medallion, FormIdeas, formideas.com; spinal brace, Kallisto, byosys.com; mandible implants, MedCAD, medcad.net; hip implant and surgical planning, TpC Design; nose prosthetic, Centre for Applied Reconstructive Technologies in Surgery (CARTIS).