INNOVATIVE SOFTWARE FOR ADDITIVE MANUFACTURING

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CORETECHNOLOGIE

4D ADDITIVE

All-in-One Additive Manufacturing Software

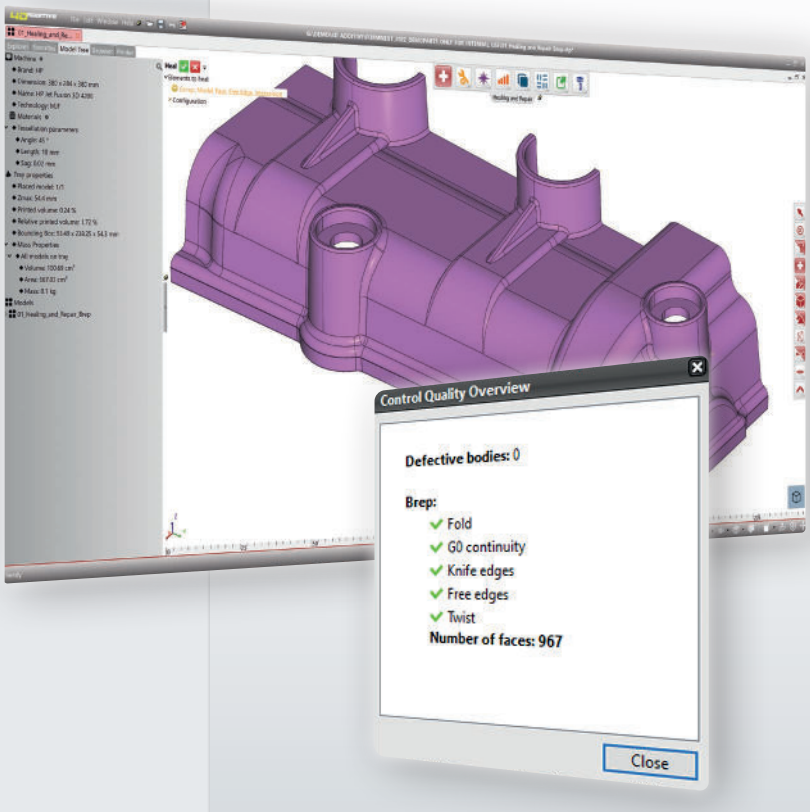
EASY 3D PRINTING WORKFLOW

4D_Additive is designed to make your life easier. Our modern software suite is the most innovative technological bridge between CAD and 3D printing and redefines seamless data management for additive manufacturing for all 3D printing technologies and machines on the market today.

The easy-to-use and modern graphic interface of 4D_Additive offers a unique App-style user experience that follows the typical 3D printing workflow. Thanks to 4D_Additive, CAD data can quickly and easily be prepared for 3D printing with a single software solution. Our Research and Development Team constantly evolves and creates breakthrough innovations to realize the next level of Additive Manufacturing.

QUALITY AND PRECISION

4D_Additive offers powerful tools to repair CAD and STL models, also performing 3D nesting, analysis, modeling, enabling texturing, and creating support and advanced lattice structures.

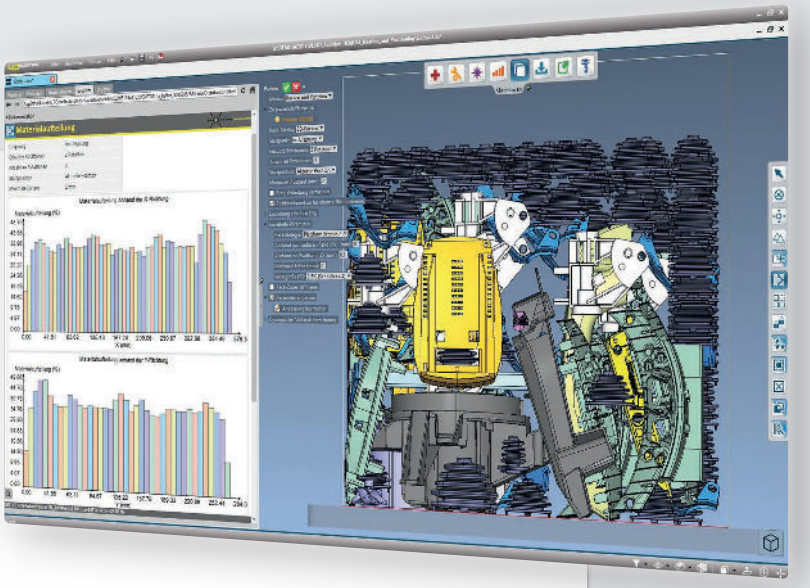


Superior manufacturing quality is guaranteed by the hybrid geometry kernel that handles STL files but also exact and light CAD geometry, in accordance with the VDA 4755/2 engineering standards. Interfaces for 24 major formats like CATIA, NX, SOLIDWORKS, Creo, STEP, and JT also provide 3D dimensions and tolerances, views, attributes as well as CAD design features.

Technology partnerships with Substance by Adobe, EOS, HP, Photocentric, Ultimaker, Volumic and Weirather enable unique texturing functions as well as direct connectivity for many different 3D printers.

CONNECTING CAD AND 3D PRINTING:

4D_Additive offers mature interfaces for all major formats such as CATIA V4/V5/V6, NX, SOLIDWORKS, Solid Edge, Creo, Inventor, Rhino, STEP, JT, PLMXML, XT, ACIS, IGES, STL, 3MF, AMF, FBX, OBJ, Nastran, VRML, COLLADA ... and many more.



3D NESTING WITH INTELLIGENCE

The intelligent 2D and 3D nesting functions allow for a rapid and secure automatic packing ensuring high build density and optimal surface quality. The nesting function uses superfast multiprocessor technology and provides maximal packing speed, accuracy, and density as well as a uniform distribution of the parts in the build space to avoid heat concentrations.

For mass production, the new power copy function allows for extremely fast packing of identical parts with maximum packing density. A report is generated, showing the even distribution of the nested parts.

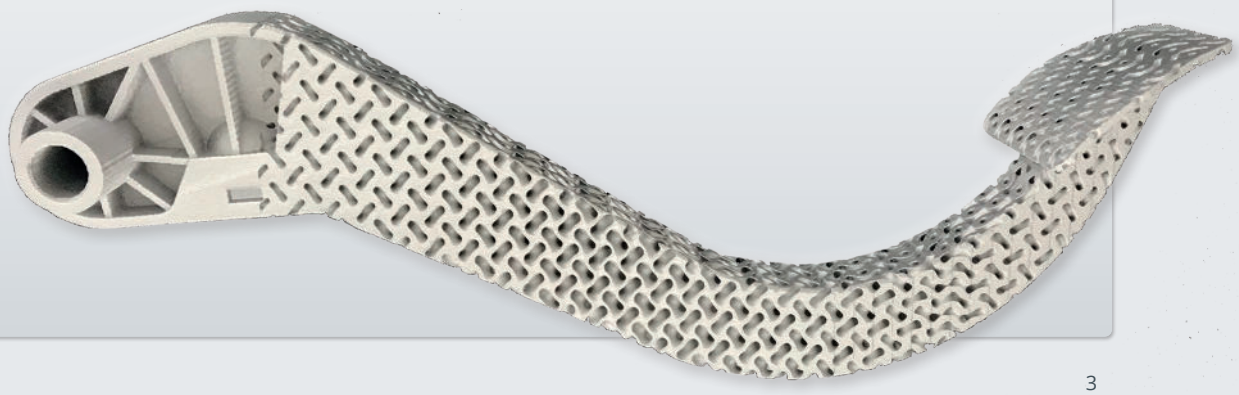
Post-nesting functions such as collision detection and external backlash analysis, allow users to ensure a successful print by detecting unwanted collisions as well as the exact spacing between the nested parts.

HOLLOW AND LATTICE

Within seconds, an advanced lattice module creates 21 different types of internal, external, and skin structures for the design of lightweight components for medical applications.

New designs with gyroid, trabecular and stochastic structures to emulate natural grids, are generated automatically to optimize the stability, stress distribution, and shock absorption of parts.

The variation of functional zones and their density as well as the use of different grid types allows the exact adaptation of the geometry to the required properties. With the new Nastran interface, complex 3D lattice geometries can be sent directly to finite element analysis tools for a seamless check of alternative part designs.



SOPHISTICATED SURFACE DESIGNS

Creating outstanding and individual surface designs has never been easier. The innovative texture module creates high-resolution textures and labels on CAD and STL models. A single click is enough to define surface areas and generate sophisticated textures, labels, lettering, and logos or QR Codes. In addition, incremental part IDs can be created automatically.

The size, resolution, position, and height of the texture can be visually adjusted using an accurate, photo-realistic display. The software also calculates distortion-free textures over surface boundaries.

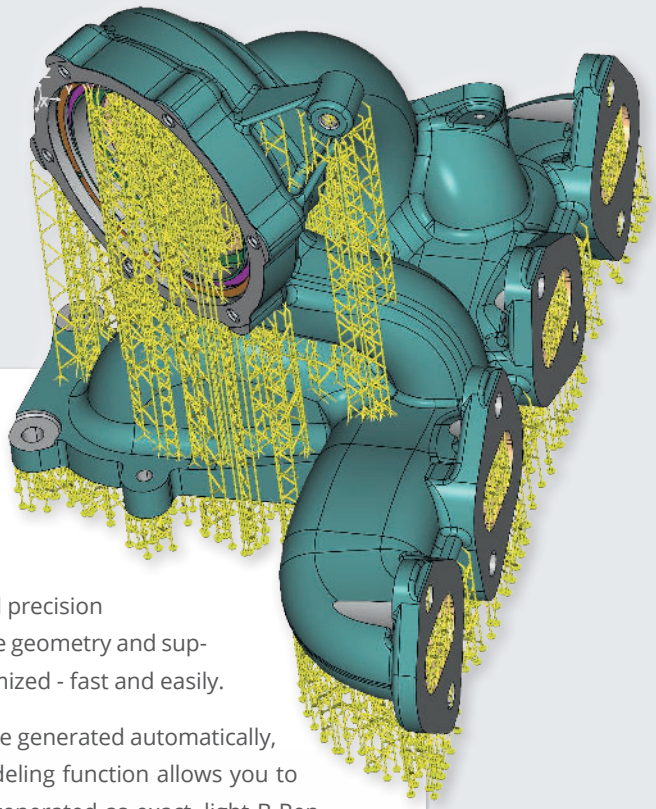
The connected Substance by Adobe database offers over 5,000 parametric surface designs for infinite customization possibilities and freedom of design.

REPAIR CAD AND STL IN SECONDS

4D_Additive allows for a precise quality check, repair, and preparation of CAD models and the direct interfaces for all major formats help to avoid the usage of approximated STL files. The healing functions for STL and CAD models automatically remove free edges, and inverted triangles, removes gaps, corrects overlapping elements, as well as twisted faces. Filter functions allow the user to locate remaining errors and fix them in seconds with easy-to-use repair functions.

With the new marching cube technology, triangulated STL and even scanned models with thousands of free edges, inverted triangles, knife edges and other errors can be automatically repaired to perfect volumes within seconds.

The mesh simplification function efficiently reduces the number of triangles as well as the file size of tessellated models.



ADVANCED SUPPORTS

The multi-criteria positioning tool automatically positions your parts for better printing and post-processing quality.

Our advanced analysis tool checks the surface roughness and precision of functional features from experimentation. Coupled with the geometry and support roughness analysis, the quality and printing time is optimized - fast and easily.

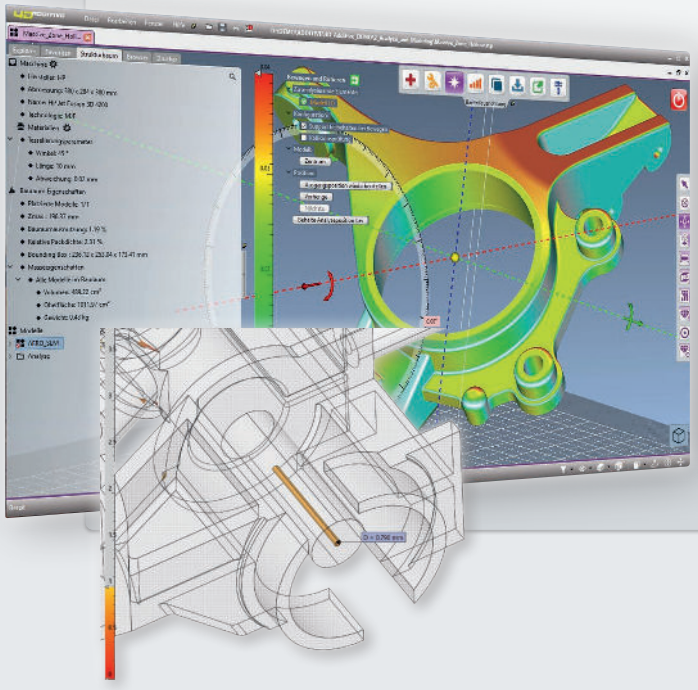
SLA supports are fully parametric and easy to use. They can be generated automatically, semi-automatically, or manually. The advanced support modeling function allows you to add, delete and edit your supports. Also, SLA supports are generated as exact, light B-Rep geometry that can be edited accurately.

The new FDM support function creates a visualization of the necessary supports and then generates them directly in the slicer for flexible adaptation and easy dismantling. This also ensures a high part quality and minimal material consumption. The supports are adaptable to any type of material such as Peek, Carbon, or Kevlar, and also to many different printing approaches.

ANALYSIS TOOLS

The wall thickness analysis allows for the identification of areas that are too thin to be printed with a specified method. The backlash detection of small holes and other small details checks the print feasibility and highlights the areas that need to be redesigned for a successful print.

The massive zone function shows areas with significant material and therefore potential heat concentrations. This analysis can be used in conjunction with the hollowing function for heat, weight, and cost reduction.



The orientation analysis tool includes up-and-down skin detection, geometric roughness, and support accessibility. Up-and-down skin works perfectly in combination with our SLS and SLM Buildmanager. The roughness analysis function allows the user to analyze the stair-stepping effect in relation to the orientation of the part, before printing. The supports accessibility identifies the potential complexity for removing supports.

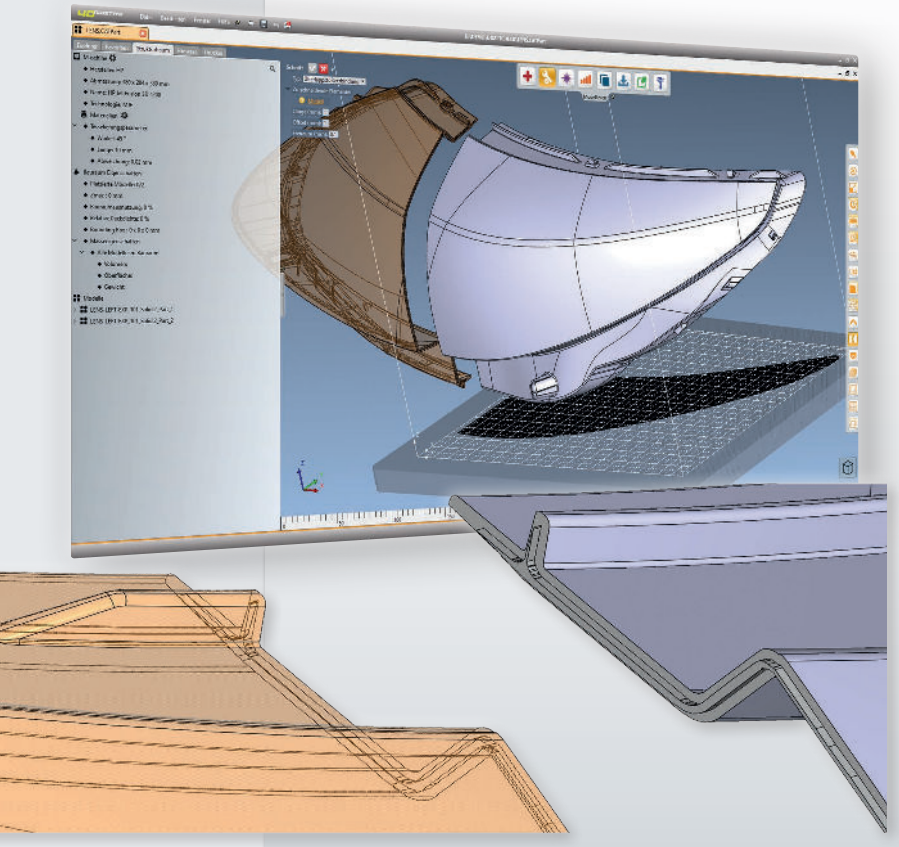
SLICING AND HATCHING

The slicing and hatching functions for FDM, SLA and, DLP, as well as a complete build manager with strategies for SLS and SLM use multiprocessor calculations for unrivaled calculation speed.

The slicer also offers advanced hatching strategies and a G-code generator. The display of the layers with a high-resolution 3D player makes it possible to evaluate the printing success for FDM.

The slicing parameters are taken directly from the technology database. In addition, different hatching patterns are available. The results can be saved in the general slicing the formats such as abf, cli, clf, cmb, slc, sli, svg, sls, and, G-code. In addition, slices can be saved as Bitmaps in png and svg formats.

4D_Additive can also slice exact CAD data, thus making it possible to generate exact slicing curves as vector graphics saved e.g. as svg files. Exact curves speed up and improve the accuracy of the printing process.

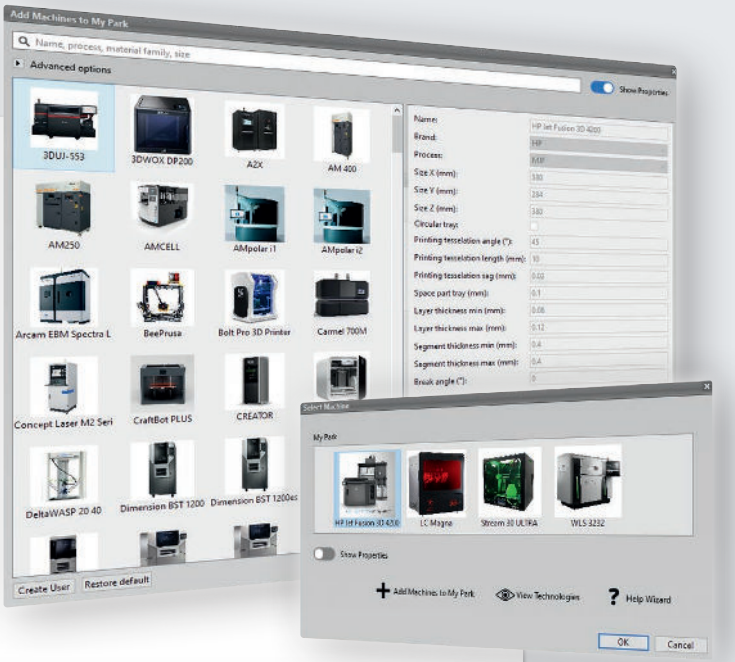


CUT AND MODELING TOOLS

The clever cutting tools allows the user to easily cut STL and precise CAD models with different cut types such as lapjJoint, pins, or polylines.

The 4D_Additive direct modeling tools work on exact CAD models to easily adapt geometries for additive manufacturing making it easy to remove features, change diameters, enter and position holes or create fillets and offset surfaces.

CAD models can also be saved in STEP format at any stage of the process.



MACHINE AND TECHNOLOGY DATABASE

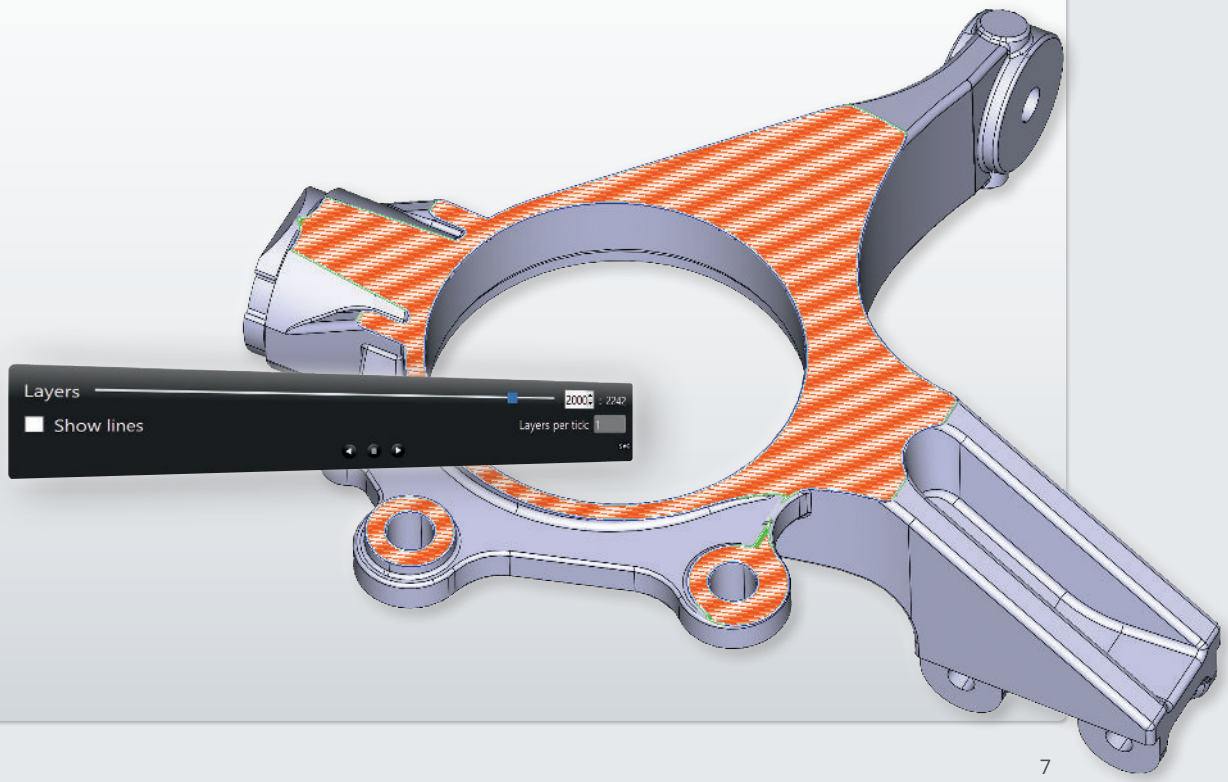
In the database of the system, all major machine types with the build space and technology parameters such as layer thickness, accuracy (e.g. minimum hole diameter) as well as available materials and costs are stored. The database can be edited with user-defined machines and parameters.

In addition, a new wizard guides the user to the best printing technology and machine for different parts and materials.

DIRECT PRINTER CONNECTIONS

Beyond the possibility to send print data as STL, 3MF files or other major slicing formats, the integrated interfaces for EOS, HP, Photocentric, Ultimaker, Volumic, and Weirather allow the print jobs to be sent directly to the printers.

This includes a certified connection to the latest HP Buildmanager as well as a full integration of EOS Print 2.0. In addition, G-code files are available for Volumic and Ultimaker as well as specific WLS files for Weirather SLS printers.



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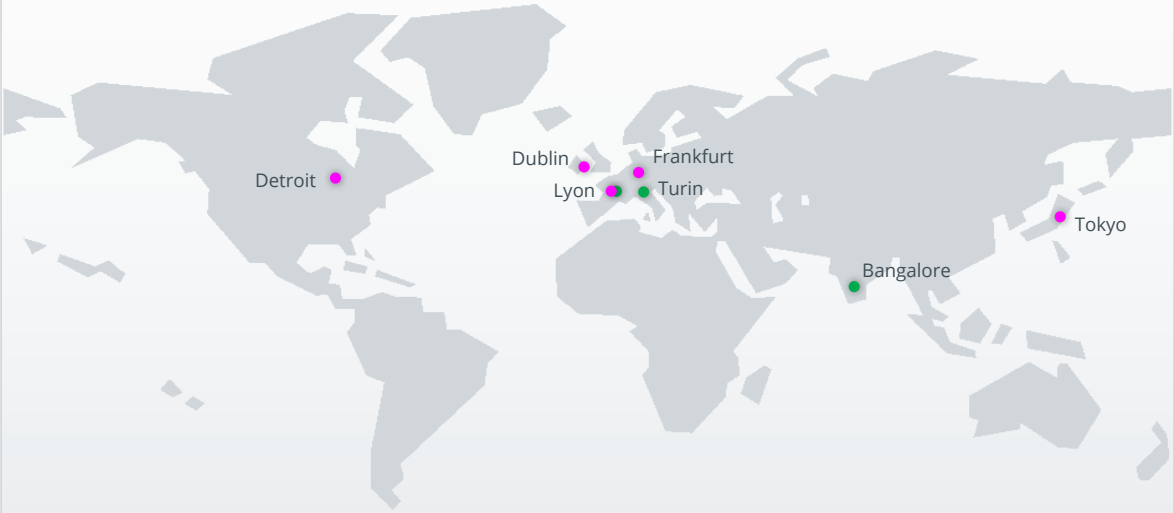
ABOUT CORETECHNOLOGIE

CoreTechnologie is an international software developer with locations in Germany, France, USA, Italy, Japan, India, and Ireland. In the CAD interoperability universe, CoreTechnologie is the leading global producer of the most comprehensive 3D conversion and collaboration software tools available today.

Our goal is future-oriented development and customer centric technology to optimize interoperability, thus helping organizations to streamline their Product Life Cycle management.

We work with highly professional automated processes, and we are always one step ahead from of latest technology. The top priority for us is that our software has the possibility to adapt to all customer requirements.

CoreTechnologie`s customer portfolio comprises more than 600 customers from several sectors including automotive, aerospace, mechanical engineering- and consumer goods industries.



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www.coretechnologie.com

GERMANY
CoreTechnologie GmbH
Klinger 5
D-63776 Mömbris
Phone: +49 (0)6029 98999-10
info@de.coretechnologie.com

FRANCE
CoreTechnologie Vente
151 Route de Vourles
F-69230 Saint-Genis_Laval
Phone: +33 (0)4 78 61 79 42
info@fr.coretechnologie.com

JAPAN
CoreTechnologie Asia Co. Ltd
〒 100-0006
Tokyo Chiyoda-ku Yurakucho
1-6-3 Hibiya Eisen Bldg.
Phone: +81 (0) 3 35 91 26 19
info@jp.coretechnologie.com

U.S.A.
CoreTechnologie Inc.
20750 Civic Center Drive, Ste 370
Southfield, Michigan 48076
Phone: +1 (248) 996 8464
info@us.coretechnologie.com