T-FLEX CAD
Parametric Drawing and Design
3D Solid Modeling

Top Systems
T-FLEX Parametric CAD is a full-function software system providing mechanical design professionals with the tools they need for today's complex design challenges. It unites powerful parametric 3D modeling functionality with the parametric drafting and drawing production toolset.
T-FLEX modeling and assembly tools enable to easily develop a full range of products, from single parts to assemblies containing thousands of components.

Highly innovative parametric modeling tools allow designers to quickly create basic shapes and easily add common mechanical features.

T-FLEX harnesses the power of Parasolid® production - proven modeling kernel developed by Siemens PLM Software.
T-FLEX supports a simple unified mode of operations for all types of documents and entities:

- Drawings
- Assembly drawings
- Bill of materials
- Solids
- Surfaces
- Parts
- Parts with multiple solid bodies
- Sheet metal
- Assembly models
- etc.

You use a common set of editing and data management functions on all types of geometry, streamlining workflow.
Unlike other products, T-FLEX lets you create parametric 2D drawings from scratch.

T-FLEX has a much more robust palette of 2D tools.

Its parametric engine is the basis of T-FLEX design and unlike engines from other programs is not limited by the number of constrained 2D entities.

The drawing immediately updates to any changes regardless of their source.

T-FLEX includes fully parametric drawing documentation, including dimensions, tolerances, text, and drawing notes.

The result can be fully automatic, so that a master parametric drawing does not require any editing as changes are required.
Custom dialog boxes of model parameters can be created directly inside T-FLEX.

This unique functionality does not require any programming knowledge or additional software installed.

Users can control parametric model in a very convenient and intuitive way.
Any thing in T-FLEX can be related to anything else.

- The variables can be assigned at any time for component names, visibility, material, any numeric or text attribute of any entity.

- The variables can be changed manually by dragging entities on the screen, or typing values into the variable editor, or by reading ASCII or database files as assigned.

- The interface is very intuitive.

- Possibilities are endless!

T-FLEX is a natural choice for family-of-parts manufacturers or any other design situations that use similar geometry but require many different sizes or permutations.
The interface is easy to learn and very consistent.

The incredible flexibility of design automation using parametric functionality.

The program's Total Flexibility approach can truly eliminate redundant tasks and enhance design efficiency.
Assembly Modeling

- T-FLEX easily tackles assembly 3D models.
- You can build complex assemblies consisting of many components.
- Using bottom-up design, top-down design, or a combination of both methods.
- Configuration management helps to simplify design reuse by creating multiple product variations within a single document.
The adaptive technology allows create assembly relationships by assigning geometrical links.

You can capture design intent accurately, and manage and edit assemblies more easily.
Users create their own modeling features.

T-FLEX models may capture elements and geometry from other models as input parameters of operations inside their own model history tree.

Any T-FLEX model can be defined as a special feature that will function equally with other modeling commands.

This mechanism can dramatically reduce the modeling time.
Parametric connectors simplify assembly modeling by automatic parameter assignment for the parts being inserted.

Parts location and sizes will adjust automatically on model modification.

The structure of an assembly may be alterable.

The drawings generated from a 3D assembly will update automatically on model modification with all detailing elements.
T-FLEX synergistically combines solid and surface modeling. Designers can extrude, sweep, revolve, and loft surfaces as can be done with solid models. It enables to do things that can't be done with parametric solids alone. Integrated surface and solid modeling provides flexibility in making design.
The set of deformation commands provide a simple way to change shapes of complex surface or solid models. Deformation may be applied either in a local area or globally. Various options may be specified by direct rules and parameters or via the special handlers. Fast preview based on input data is available prior to exact model generation.
T-FLEX supports direct editing of 3D models, retaining history of the edits so that they can be regenerated.

- It is possible to modify parameters of the faces whose underlying surfaces are analytical.
  - Modify parameters of faces created as blends
  - Imprinting
  - Face replacement
  - Face extension
  - Face removing
  - Body separation
  - etc.
T-FLEX automatically creates and updates drawings from 3D models. Users can quickly create:
- standard and auxiliary views
- including section
- detail
- broken and isometric views

Professional detailing functions support quick creation and complete manipulation of all common annotations used on mechanical drawings.

Additional advanced capabilities can significantly increase detailing productivity.

With T-FLEX, you have full control over every element of your drawings, so you know that they meet the requirements of organizational and international standards.
T-FLEX can generate and update an accurate BOM.
Part and subassembly quantities are always kept up to date, and are instantly organized and populated into a drawing BOM.
Changes to the assembly are associative BOM table is updated automatically.
BOM templates and table properties are fully customizable.
T-FLEX provides a set of commands tailored for the efficient construction of sheet metal parts from design of sheet metal components to flat pattern development and the creation of engineering drawings.

- Bend
- Unbend
- Re-bend
- Forming Feature
T-FLEX provides a sequence of integrated tools that control the mold creation process.

- You can apply body taper; generate parting lines and surfaces; resize the model's geometry to account for the shrink factor when plastic cools; perform tooling split to separate core and cavity.
- You can examine model for potential problems that might prevent the core and cavity from separating.
Built-in Express Analysis offers an easy-to-use first pass stress analysis tool that enables design engineers to execute design verification directly in T-FLEX.

Express Analysis uses the same design analysis technology that professional FEA add-on module uses to perform stress analysis.

It helps to determine how designs will perform under real-world conditions, and identify potential design flaws before expensive physical prototypes are built.

More advanced analysis capabilities are available within the T-FLEX Analysis line of products.
T-FLEX Open API is based on .NET technology offering customers and third-party developers extensive possibilities for developing add-on applications in various areas.

- T-FLEX Open API supports full object oriented programming concepts and multiple programming languages with identical functional access to all T-FLEX functionality.

- It also helps users to customize T-FLEX for their specific environment and automate specialized workflows.
T-FLEX can be utilized as an Internet engine.

- Provides engineers, manufacturers and distributors with opportunity to display their products.
- Uses third-party designs.
- Performs marketing activities.

Using T-FLEX and T-FLEX Open API, third parties, OEMs, developers, and system integrators can deliver parametric CAD functionality across a wide range of Internet-based products.
T-FLEX is a Unicode application and hence supports all of the languages around the world.

Users can utilize multilingual text that will be displayed correctly in T-FLEX documents.

Users can name objects and parameters in whatever language they like.

There will be no problems with any language files names under any language version of Windows operating system.
T-FLEX's multiple interface options help maximize productivity by allowing users to choose an interface that matches their experience and preferences.

The Windows-style pull-down menu interface is easy to navigate.

Compact text-based command bar, icon toolbars and shortcut key assignments are also available.

Enhanced capabilities, such as intelligent positioning tools and pop-up menus driven by hot key activation, greatly simplify workflow.

T-FLEX provides direct model interaction, using 3rd mouse button, dynamic geometry preview, and support for SpaceMouse® to seamlessly blend frequent and advanced capabilities.
The rich suite of T-FLEX translators enables you to satisfy differing import and export requirements, effortlessly.

T-FLEX is interoperable with the most widely used 3D-modeling and 2D-drawing systems via the following formats:

- Parasolid
- IGES
- STEP
- Rhino
- STL
- DWG
- DXF
- SolidWorks
- Solid Edge
- Inventor
- etc

Additionally, T-FLEX provides options for exporting graphical images to presentations, web pages, and other documentation.
T-FLEX CAM in combination with T-FLEX CAD offers a fully integrated parametric solution for design and manufacturing.

The base module of T-FLEX 3D CAM system contains:

- The mathematical core integrated with the mathematical core of Parasolid platform;
- The tool editor for designing the tools employed for machining a specific part, and for building tool databases;
- The postprocessor generation module that allows creating custom postprocessors, using tabulated settings, macros or actual programming;
- The machining simulator showing the machining process according to the generated control sequence without the material removal;
- The library of postprocessors including about 250 predefined postprocessors for:
  - Wire EDM
  - Laser
  - Turning
  - Punching
  - Drilling (2.5D, 5D)
  - Milling (2.5D, 3D, 5D)

T-FLEX NC Tracer, a simulation application, allows T-FLEX CAM to interactively verify the machine codes and machine operations.
T-FLEX Analysis offers a wide spectrum of powerful tools to help engineers to perform virtual testing and analysis for predicting the physical behavior under various loading conditions.

T-FLEX Analysis shows how a model will perform under real-world conditions before it is built.

- Linear static studies calculate displacements, reaction forces, strains, stresses, and factor of safety distribution.
- Frequency analysis calculates the natural frequencies and the associated mode shapes.
- Buckling studies help avoid failure due to buckling which refers to sudden large displacements due to axial loads.
- Thermal studies calculate temperatures, temperature gradients, and heat flow based on heat generation, conduction, convection, and radiation conditions.

T-FLEX Analysis provides easy-to-use yet powerful design analysis tools for designers and engineers that help them improve design quality, avoid field failures, reduce material costs, and shorten time-to-market.
T-FLEX Requirements

Minimum:
Microsoft® Windows® 2000, XP, 2003 Server, Vista
32 bit or 64 bit
Intel® Pentium IV – 1Ghz or equivalent
250 MB hard disk space

Recommended:
2 GB memory (RAM) or more for large assemblies
OpenGL Graphics Accelerator