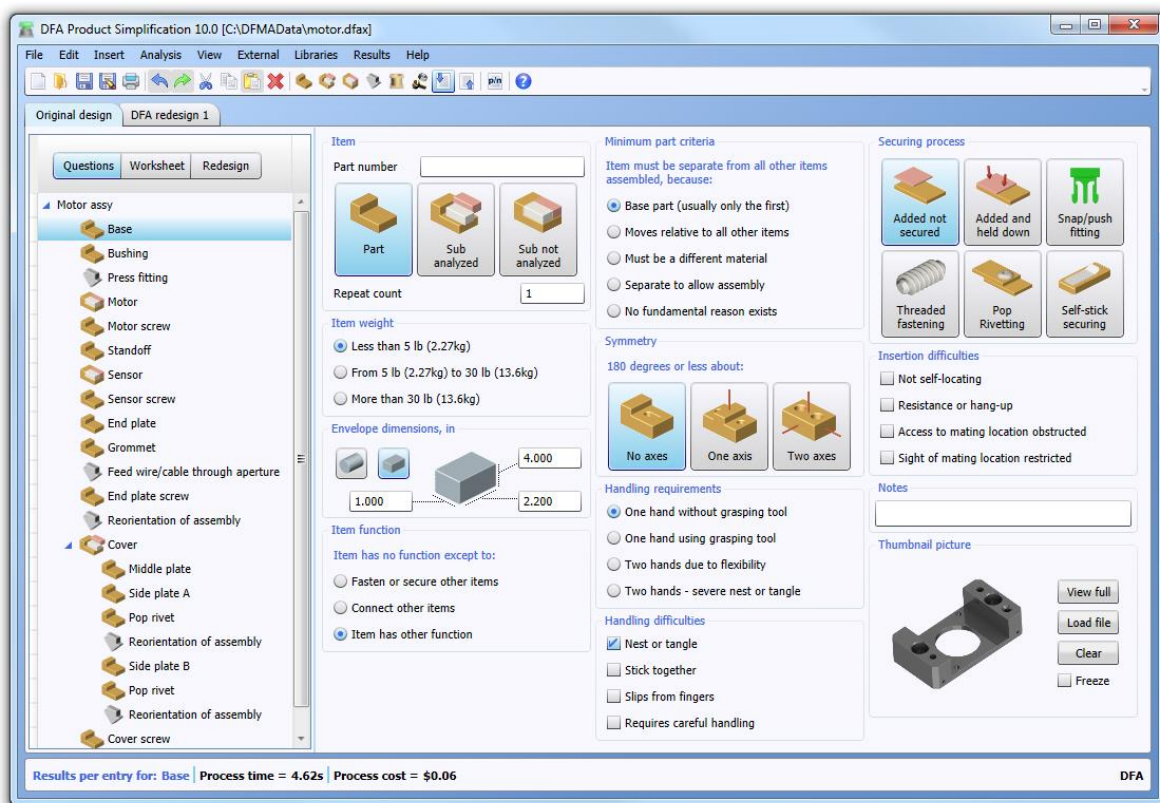


DFA Software - Product Simplification

Boothroyd Dewhurst, Inc.'s Design for Assembly (DFA) Product Simplification (DFA) software offers engineers the capability to analyse design concepts and create innovative products with fewer parts and higher quality.

Lean from the start

Design for Assembly is a methodology for evaluating part designs and the overall design of an assembly. It is a quantifiable way to identify unnecessary parts in an assembly and to determine assembly times and costs. Using the DFA software, product engineers assess the cost contribution of each part and then simplify the product concept through part reduction strategies.



Benefits of DFA for Product Designers

Product engineers know that 85% of manufacturing costs are determined in the early stages of design. They also know that making informed design decisions during the concept stages avoids costly corrections later on. You can use the DFA software to:

- **Estimate assembly difficulty.** Establish a rating for your product design in terms of its assembly difficulty. The software rates each part according to how it is grasped, oriented and moved for insertion and how it is inserted and fastened.
- **Support decision-making.** The software provides objective, consensus-building information so your team can examine all the potential design solutions and select the most effective approach.



- *Benchmark existing products.* The DFA index, a measure of assembly efficiency, serves as a basis for quantitatively comparing design alternatives or even against competing products, irrespective of size or complexity.
- *Add focus to design reviews.* DFA analysis can guide the progress of a design, verifying improvement as it evolves. As redundant parts or operations and assembly difficulties are eliminated, the assembly efficiency scores noticeably improve.
- *Sharpens design skills.* The software helps designers establish the theoretical minimum number of parts. Engineers can then identify design concepts that reduce unnecessary complexity and cost.
- *Integrate design and manufacturing.* The DFA approach gives an overall structure for making design changes. DFMA enables engineers to select appropriate and cost-effective shape-forming processes.
- *See fast results from the start.* DFA software promotes systematic thinking about every part in an assembly. After entering the name and part number for the product, the first step is to identify all the components in the design, together with any special handling operations by creating a Structure Chart.

Then populate the Structure Chart by choosing from menu options such as “add part” and “add operation.” To save time, the software also allows cut and paste from existing DFA analyses or even to import existing Bills of Materials through an easy four-step wizard, or import part dimensions from existing CAD models. Part costs already determined in DFM software can also be quickly added.

For each item in the design, answer a series of DFA questions, such as must each item in turn in the chart be separate from all others in the assembly. Specify securing methods, part dimensions, and any handling, insertion or fetching difficulties for each part. The answers establish the assembly time and cost for each item in a design, updating a results table as each question is answered. Separate picture and memo fields allow an image of each part to be displayed along with any comments. With a completed DFA analysis for several designs, comparison reports and graphs help summarise the results.

[The link to Design for Manufacture](#)

DFA complements Design for Manufacture efforts. Engineers use DFA software to reduce the assembly cost of a product by consolidating parts into elegant and multifunctional designs. DFM software allows the design engineer to quickly judge the cost of producing the new design and to compare it with the cost of producing the original. Used together, DFM and DFA software gives engineers an early cost profile of product designs, providing a basis for planning and decision-making.

[DFA software export capabilities](#)

Analysis results/reports can be exported in the following formats: .BMP, .EMF, .WMF, .JPG, .JPEG, .PDF, .HTM, .HTML, .RTF, .TXT, .XLS, .XLSX.

[DFA software requirements](#)

DFA software minimum [recommended] requirements: Windows Vista, Windows 7, 8 (64bit compatible). Dual core processor [Quad core]. 2GB [4GB or more] RAM. XGA 1024x786 [WXGA 1280x800 or better] display. 250MB disk space for installation [1GB+].

