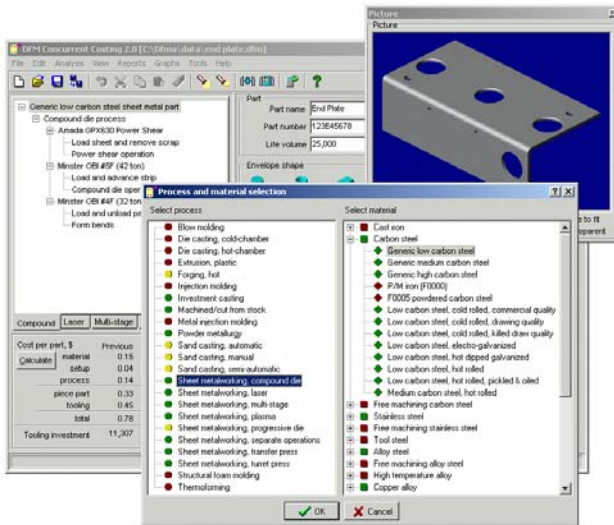


Boothroyd Dewhurst, Inc.

To maintain their market position, leading manufacturers focus on improving products while lowering costs in the design-to-production cycle. Optimizing product design for manufacturing is a proven way to accomplish this goal. Design for Manufacture (DFM) Concurrent Costing® software from Boothroyd Dewhurst, Inc., makes the task easy by allowing fast and accurate cost estimating at the design-concept stage.



Design

For

Manufacture

DFM

Software

Concurrent Costing®

DESIGN FOR MANUFACTURE – VITAL TO MANUFACTURING COMPETITIVENESS

Design for Manufacture is a systematic approach that allows engineers to anticipate manufacturing costs early in the design process, even when only rough geometries are available on the product being developed.

Given the large number of process technologies and materials available, few design engineers have detailed knowledge of all the major shape-forming processes. Consequently, engineers tend to design for manufacturing processes with which they are familiar. DFM methodology encourages individual engineers and concurrent development teams to investigate additional processes and materials and to develop designs that may be more economical to produce. With more information about viable processes and materials, users can quantify manufacturing costs for competing design alternatives and decide which design is best.

THE LINK TO DESIGN FOR ASSEMBLY

DFM complements Design for Assembly (DFA). Engineers use DFA software to reduce the assembly cost of a product by consolidating parts into elegant and multifunctional designs. DFM software then allows the design engineer quickly to judge the cost of producing the new design and to compare it with the cost of producing the original assembly. Used together, Design for Manufacture and Assembly (DFMA®) software give engineers an early cost profile of product designs, providing a basis for planning and decision making. Such analysis, when performed at the earliest stages of concept design, has the potential to greatly influence manufacturing and other life cycle costs before they are locked in.

What You Can Do With DFM Concurrent Costing

Quickly estimate the cost of manufacturing and finishing a part

Isolate the principal cost components

Investigate design changes to reduce costs

Compare alternative processes and materials for the part

Customize materials, processes and operations for your organization

A NEW SOFTWARE TOOL FOR DFM

DFM Concurrent Costing allows you to develop rapid estimates of the cost to manufacture a part. The software puts 25 years of industry-validated research into the hands of the designer or the concurrent engineering team. Your organization can benefit from using DFM Concurrent Costing as:

A Highly Accurate Cost-Estimator

Gain quick insight into the tremendous cost impact of even simple changes to part dimensions. DFM Concurrent Costing provides a fast, accurate way to review evolving designs for cost efficiency by quickly simulating the use of alternate materials and comparing various shape-forming processes.

An Aid to Concurrent Engineering

Shorten product development cycles by working collaboratively on cost decisions. Because DFM Concurrent Costing is so easy to use, designers and manufacturing engineers can work closely with personnel from marketing, finance and purchasing to analyze alternative materials and process options.

A Useful Design Tool

Redesign existing products for better quality and manufacturability while still adhering to manufacturing cost requirements. DFM Concurrent Costing effectively aids redesign by offering quick testing of alternate materials and processes.

An Effective Supplier Negotiating Aid

Evaluate supplier quotes by comparing the information the software provides on such items as total cost, cycle time, machine size and die cost. DFM Concurrent Costing gives even nonspecialists a foundation for meaningful discussions with suppliers.

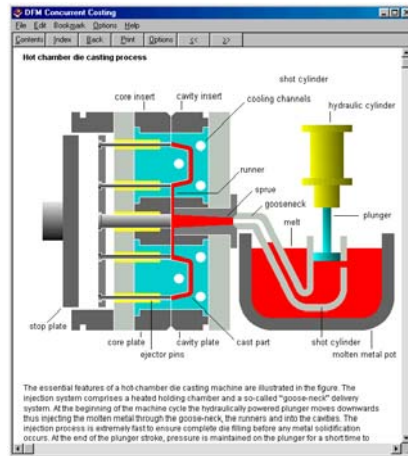
A Competitive Benchmarking Tool

Compare your designs with competitors' products to determine market feasibility and to target costs. Because of its accuracy in predicting costs, DFM Concurrent Costing adds advantage to companies seeking to enter competitive industries.

MAKE YOUR SKETCH – THE REST IS EASY

DFM Concurrent Costing starts in the analysis window, where you enter the part name, part number, life volume, and overall envelope shape for the part. You then enter basic information about the part dimensions and select the material and manufacturing process to be used. The Process Chart on the left side of the window shows in file tree format the material and processes you have chosen.

As you proceed, the software guides you by indicating which materials and processes are compatible, possible, or incompatible. Context-sensitive help provides background information and diagrams for shape-forming processes. Engineers, purchasing professionals, and other decision makers on the product development team will appreciate having this manufacturing knowledge at their fingertips.



Once you make material and process choices, the Responses Panel on the right side of the window displays default values that are used to calculate an approximate cost estimate for producing the part. You customize the cost estimate by changing the defaults and entering more-detailed part geometry and values specific to your own manufacturing site. A Geometry Calculator included in the software helps you insert part geometry. You can also edit the geometry by entering data from a solid modeling program. Each time you edit a given default value, such as part volume, average machine rate, tolerance, or number of cavities, and then click on the Calculate button, the Results Panel updates with a more accurate cost estimate.

The software gives the steps in each manufacturing process, so that you can identify all costs. For example, hot chamber die casting includes both the die casting process and the trimming operation, so DFM Concurrent Costing gives cost values for each step. The software also allows you to fine-tune a cost estimate by adding secondary operations such as die threading or finishing.

Finally, you can save each cost estimate as a separate file for comparison. A variety of reports in graph or table format that allow you to compare the material, setup, process, and tooling cost breakdowns for each analysis. Within each breakdown, you can also see how changes in such parameters as number of mold cavities affect cost. A special Cost Reduction Report identifies significant cost contributors that can serve as a focus for redesigning the part.

You strive to create well-designed products. When you use DFM Concurrent Costing, "what-if" explorations in new design directions come with the assurance that your designs are also affordable to produce.



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Contact Boothroyd Dewhurst, Inc. to learn how DFM Concurrent Costing can lead to more economical products.