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Manufacturers Say They Cut Product Costs by Half Using Design for Manufacture and Assembly

*Case studies compiled over 15 years document millions of dollars saved
as a result of early design analysis approach from Boothroyd Dewhurst, Inc.*

Wakefield, R.I., March 9, 2000 – Boothroyd Dewhurst, Inc., developer of Design for Manufacture and Assembly (DFMA®) software, has compiled the results of 117 product-design case studies submitted by 56 manufacturers over the past 15 years. The case studies report that companies in a range of industries, including aerospace, transportation, computer, medical and telecommunications, have substantially reduced product costs by utilizing DFMA strategies and software during design engineering.

As the results in Table 1 show, cost and time reductions are given for 16 categories. Companies reported average reductions of 60 percent in assembly time, 63 percent in manufacturing cycle time, 50 percent in overall product cost, and so on. Eleven case studies included dollar figures for estimated annual cost savings attributed to DFMA. In these case studies, the companies reported that DFMA saved them over \$1.4 million, on average, in annual product costs.

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Category	Number of cases	Average reduction (%)
Part count	100	54
Assembly time	65	60
Product cost	31	50
Assembly cost	20	45
Assembly operations	23	53
Separate fasteners	20	60
Weight	11	22
Labor costs	8	42
Manufacturing cycle	7	63
Part costs	8	52
Unique parts	8	45
Assembly tools	6	73
Material cost	4	32
Number of suppliers	4	51
Manufacturing steps	3	45
Assembly defects	3	68
Annual cost savings	11	\$1,417,091

Table 1. DFMA results from 117 published case studies involving 56 companies (data as of April 1999).

DFMA is a technique for analyzing product designs that allows engineers to quantify manufacturing and assembly costs early in the development process. Manufacturers use DFMA to improve assembly efficiency, reduce part count, cut costs and benchmark competitive designs. DFMA software guides engineers through a systematic analysis of the global structure of products and suggests parts consolidation and elimination strategies. Data from DFMA analyses and from corporate accounting programs form the basis for the case study results reported in Table 1.

DFMA software provides benefits that match the cost and productivity goals industry seeks to reach. A 1998 survey of U.S. mid-range manufacturers by Grant Thornton LLP, Chicago, reported that reducing product cycle time and total product cost are among the critical success factors for companies in the next few years. (The “9th Annual Grant Thornton Survey of American Manufacturers Report” is available at <http://www.grantthornton.com/resources> under the menu item “Manufacturing & Distribution.”)

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“American manufacturers began implementing DFMA in the early 1980s, when global competition forced them to improve efficiency,” says Ray Kurland, president of TechniCom, Clifton, N.J. “Worldwide, the drive to shorten the manufacturing cycle and reduce costs has only intensified since then. The long-term results documented by Boothroyd Dewhurst provide a powerful argument that these fundamental design approaches help manufacturers stay ahead.”

As the case study results reflect, DFMA analysis often offers additional benefits to the larger enterprise downstream of product design and manufacture. For example, Table 1 shows that the average reduction in part count was 54 percent and the average reduction in separate fasteners was 60 percent. These types of design achievements have a company-wide ripple effect, reducing the number of suppliers and cutting inventory and documentation costs.

“We’ve consistently relied on DFMA over the years to help product development teams innovate,” says David Meeker, principal engineer at Compaq, Marlboro, Mass. “The benefits start in design engineering and extend through manufacturing, product packaging and field service. We often use the software to define the design and manufacturing capabilities of competitors and to understand the market-entry costs for their products. DFMA analysis continues to be use tool for engineers because it yields information we can leverage in many ways.”

About Boothroyd Dewhurst, Inc.

Boothroyd Dewhurst, Inc., is a winner of the 1991 National Medal of Technology Award, presented by President George Bush. Other recipients of the award have included William Gates of Microsoft Corp. and Kenneth Olsen of Digital Equipment Corp. Boothroyd Dewhurst is dedicated to continually developing the DFMA knowledge base through its integrated software programs, workshops, consulting services and international conferences. For more information, contact Boothroyd Dewhurst, Inc., 138 Main Street, Wakefield, RI 02879, USA. Tel. (401) 783-5840. Fax (401) 783-6872. Web site: www.dfma.com. E-mail: info@dfma.com.

Editors’ Note: Table 1 is from a white paper called “Development of DFMA and Its Impact on U.S. Industry.”

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