



Instructions for Using This Electronic Form

A Member Service of the



Tooling, Manufacturing & Technologies Association

At any time, you may elect to print this document and handwrite your responses, and return by either fax or mail.

This form is designed to be **completed electronically**. To do so, you will need the newest form of Adobe Acrobat Reader software, version 9.0. A free copy is available for download from their website at <http://get.adobe.com/reader>

You can use your mouse or the tab key to move from one answer box to another. (To make the answer boxes visible, look for and click on the "Highlight Fields" button in the upper right hand corner of your screen.)

If you are using an earlier version of acrobat, please be aware of the following:

You may not have the ability to save your answers as part of the file. Alternatively, you may find that you are able to save your answers **ONLY ONCE** and that if you reopen the file, you are unable to make further changes.

We recommend printing a blank copy of this form as backup or go to www.performancebenchmarking.org to download another copy of this form.

To **submit** your data, you may:

- Print a hard copy with your responses and fax or mail it to us.
- Save your answers as part of the file and submit by email (using the button in the upper right hand corner). This opens a link to your email service (either outlook or internet mail) in order to create an email message with your responses attached. You may have to then open your email account and manually click the send button.
- Save your answers and this file on your computer under another file name and attach it in a separate email to pbs@mmtc.org.



P E R F O R M A N C E
B E N C H M A R K I N G

For Benchmarking Use Only
Site ID _____
Svkey _____

Makers of Dies, Molds, or One-Off Machined Products
(Valid through 4/15/13)

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This form is for plants whose primary business is making one-off machined items, such as dies, molds, or prototypes. **If more than 50% of your sales are of repetitive parts or products, made in volumes of at least several units, then this is the wrong form for you.** Use our Machined Parts and Assemblies form instead. Call us, or go to www.performancebenchmarking.org to download the appropriate form.

- Please try to report all of your data (financial and other) for the same 12-month period, preferably calendar 2011.
- Please indicate currency units if not U.S. Dollars: _____
- If you operate more than one plant, please provide data for each plant separately.



Company Contact Person

Contact Person: _____

Company Name: _____

(This is how it will appear on your report.)

Address: _____

City/Town: _____

State/Province: _____

Country/Postal Code: _____

Phone: _____

Fax: _____

E-Mail: _____

Plant Location (If Different)

City/Town: _____

State/Province: _____

Country: _____

Please return this questionnaire, and direct any questions to:

Performance Benchmarking Service
MMTC

47911 Halyard
Plymouth, MI 48170

(P) 888-414-6682

(F) 734-451-4202

E-mail pbs@mmtc.org

<http://www.performancebenchmarking.org>

Please keep a copy of this questionnaire in the event that we need to contact you for clarification.

If less than 50% of your sales are of one-off items such as dies, molds, or prototypes, this is the wrong form for you. Please use our Machined Parts and Assemblies form instead.

Plant Information: What do you make at this plant? Using what processes? What materials? For what types of customers?	1. (You <u>must</u> provide a written description.)		
Please enter your industry code (whether U.S. SIC, NAICS, or other classification system), if you know it.	2. _____ <input type="checkbox"/> SIC <input type="checkbox"/> NAICS <input type="checkbox"/> Other _____		
Is this the only location of your company? [If no:] How many people work at your company, at all of its locations world-wide?	3. Only location? <input type="checkbox"/> Yes <input type="checkbox"/> No [If no:] 4. Total company employment (check one box): <input type="checkbox"/> 1-19 <input type="checkbox"/> 20-99 <input type="checkbox"/> 100-499 <input type="checkbox"/> 500+		
Which do you consider to be your core business(es)?	5. Progressive Dies <input type="checkbox"/> Yes <input type="checkbox"/> No 6. Transfer Dies <input type="checkbox"/> Yes <input type="checkbox"/> No 7. Line Dies <input type="checkbox"/> Yes <input type="checkbox"/> No 8. Diecast Dies <input type="checkbox"/> Yes <input type="checkbox"/> No 9. Other Dies <input type="checkbox"/> Yes <input type="checkbox"/> No 10. Molds <input type="checkbox"/> Yes <input type="checkbox"/> No 11. Prototypes or Other One-Off Machined Products <input type="checkbox"/> Yes <input type="checkbox"/> No		
Please describe the range of work you did in the past year on your one-to-an-order type jobs. Roughly what was your average or typical invoice size? Roughly what about your lowest-invoice job? What about your highest invoice job?	12. Typical /Average Invoice Size \$ _____	13. Low Invoice Size \$ _____	14. High Invoice Size \$ _____
Approximately what percent of your sales fall into each of the following categories? [If your answer to Q15 is less than 50%, this is the wrong form for you. Use our Machined Parts and Assemblies form instead.]	<ul style="list-style-type: none"> • Engineer-to-Order (one-of-a-kind items: dies, prototypes, special machines, etc.) 15. _____ % • Job Shop Products and Services (short-term or non-repeating orders) 16. _____ % • Make-to-Order Jobs Run Regularly (long-term, repeating orders) 17. _____ % • Make-to-Stock Work 18. _____ % <p style="text-align: right;">Total (should sum to 100) _____ %</p>		
In the past year, approximately what percent of sales were to consumers, institutions, wholesalers, or retailers (i.e., NOT to other manufacturers)?	19. _____ % sales NOT to manufacturers		
In the past year, roughly what percent of your sales were:	<ul style="list-style-type: none"> • Defense/military-related? 20. _____ % • Medical/healthcare-related? 21. _____ % 		
In the past year, roughly what percent of your sales were to customers in the following industries?	<ul style="list-style-type: none"> • Automotive 22. _____ % • Aircraft/Aerospace 23. _____ % • Computer, Communications, or Electronic Equipment 24. _____ % 		
In the past year, what percent of your sales were from:	<ul style="list-style-type: none"> • Products you didn't make three years ago? 25. _____ % • Customers you didn't serve three years ago? 26. _____ % • Industries you didn't serve three years ago? 27. _____ % 		
In the past year, what percent of your sales were shipped outside your home continent or trade area (e.g., North America/NAFTA, European Union, Asia/Pacific, etc.)?	28. _____ % sales exported beyond trade area		
Financial: What were your total sales at this location in the past year? (Use calendar 2010 or your most recent fiscal year.) What were your sales <i>two years</i> earlier (i.e., calendar 2008)?	Annual Sales: <ul style="list-style-type: none"> • Calendar 2010 or most recent fiscal year 29. \$ _____ • Two years earlier (e.g., 2008) 30. \$ _____ 		
Receivables: On average during the past year, what were your receivables – the amount that your customers owed you?	31. \$ _____ average receivables		

<p>Labor Costs: What was your total payroll in the past year? (Include payments for Social Security, Medicare, bonuses, and overtime. Exclude payments for health care, pension plans, and other fringe benefits. Also exclude any payments made to people who are not your employees.) How much of payroll was for :</p>	32. Hourly employees who work on the shop floor? \$ _____ 33. All others who work in the shop or factory (e.g., foremen & supervisors) plus all design/engineering staff? \$ _____ 34. All other non-shop, non-engineering employees? \$ _____ 35. Total Payroll (Q32+Q33+Q34) \$ _____																																			
What was the average wage rate, excluding overtime, for hourly shop employees (from Q32)? Please include all skill/seniority levels in this average.	36. Avg. hourly wage \$ _____ per hour																																			
What were your expenses for health care, pension plans, workers' comp, and other fringe benefits not included in payroll? How much of those expenses were for: <ul style="list-style-type: none"> • Factory employees (working in the shop or in design/engineering)? • Non-factory employees? 	37. \$ _____ factory employees 38. \$ _____ non-factory employees																																			
What did you spend for temporary or contract personnel in the past year? How much of your spending was for: <ul style="list-style-type: none"> • Factory temps (working in the shop or in design/engineering)? • Non-factory temps? 	39. \$ _____ factory temps 40. \$ _____ non-factory temps																																			
<p>Purchases from Other Firms and Locations: In the past year, how much did you spend on purchased raw material, parts, supplies, and perishable tools? (Do not include energy costs here.) Approximately what percent of these purchases were from supplier locations outside your home continent or trade area (e.g., North America/NAFTA, European Union, Asia/Pacific, etc.)?</p>	41. \$ _____ raw material, parts, supplies 42. _____ % not from home continent or trade area																																			
In the past year, how much did you spend on services you paid others to provide? How much of this spending was for: <ul style="list-style-type: none"> • Manufacturing-related services? (e.g., subcontracted processing, outside repair & maintenance, design services, waste disposal, etc.) Include factory insurance and property taxes here. • Non-manufacturing-related services? (e.g., outside payroll, legal, and accounting services; phone, postage, shipping, sales commissions to non-employees, etc.) 	43. \$ _____ manufacturing services 44. \$ _____ non-manufacturing services																																			
In the past year, how much did you spend on energy, across all fuels (electricity, natural gas, fuel oil, etc.)? What percent of that was for the factory (i.e., not for the office)?	45. \$ _____ energy costs 46. _____ % for factory																																			
<p>Plant & Equipment Costs: In the past year, what were your expenses for depreciation, rent, and leases? Be sure to include: 1) depreciation & amortization of factory buildings & equipment you own; 2) factory rent; and 3) factory equipment lease payments.</p>	47. \$ _____ depreciation, rent, and lease payments																																			
Roughly what is the replacement value of all the machines and equipment you use? Please include the value of machines that you lease as well as those you own. By replacement value, we mean that if you use a 20-year-old machine, how much it would cost to replace it with a roughly identical 20-year-old machine. (Please do NOT include the value of your building or land, and do NOT report book value.)	48. \$ _____ machinery/equipment replacement value																																			
<p>Quoting and Estimating Which cost components do you calculate separately for each new job? Which costs do you sometimes calculate, but only for unusual jobs? Which costs do you roll into your hourly billing rates? Check NA for any costs that do not apply to your business, or for items that are bought and owned directly by your customers ("consigned").</p> <ul style="list-style-type: none"> - direct material - tools, punches, fixtures, etc. - engineering/design labor - factory indirect labor - order processing - inventory holding costs 	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;"></th> <th style="width: 20%;">Calculated Separately for Each Job</th> <th style="width: 20%;">Calculated for Special Jobs</th> <th style="width: 20%;">Included in Usual Hourly Billing Rates</th> <th style="width: 10%;">NA</th> </tr> </thead> <tbody> <tr> <td>49.</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>50.</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>51.</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>52.</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>53.</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>54.</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </tbody> </table>		Calculated Separately for Each Job	Calculated for Special Jobs	Included in Usual Hourly Billing Rates	NA	49.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	50.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	51.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	52.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	53.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	54.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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<p>Order Processing, Scheduling and Delivery: Is yours a business that requires almost no inventory? By this we mean that you do work on consigned material or components, so that most inventory is on your customers' books and not on yours.</p>	55. <input type="checkbox"/> Yes <input type="checkbox"/> No [IF YES, SKIP TO QUESTION 58.]																																			

How much total inventory (raw, WIP, and final) did you have on hand at the <i>end</i> of the past year?	56. \$ _____ year-end inventory
How much total inventory at the <i>beginning</i> of the year?	57. \$ _____ beginning-of-year inventory
In the past year, what percent of your deliveries were made on time?	58. _____ % deliveries you made on time
What percent of deliveries made by your suppliers were made on time?	59. _____ % deliveries your suppliers made on time
How much did you spend in the past year on "premium freight" charges for which customers did not reimburse you?	60. \$ _____ premium freight
In the past year, to what extent did you "bump" work from your planned production schedules in order to get "rush" or "hot" jobs done on time? That is, roughly what percent of shop labor hours were spent doing "rush" tasks that required bumping other previously-scheduled work?	61. _____ % of shop labor hours that bumped scheduled work [If you do not schedule jobs, enter NA.]
What percent of your sales were from orders you got over the internet?	62. _____ % of sales from internet orders
What percent of your purchases were made over the internet?	63. _____ % of purchases made over internet
Are your order entry and/or production scheduling system(s) integrated with EDI or the internet, so that orders can be processed and scheduled automatically, without human intervention?	64. Integrated with EDI or the internet? <input type="checkbox"/> Yes <input type="checkbox"/> No
Human Resources:	
On average in the past year, how many individuals worked at this location? Please include part-time and contract labor. (If your employment counts changed significantly over the past year, please be careful to report AVERAGE, not YEAR-END counts.)	65. _____ average number of individuals working at this location
How many of these personnel (from Q65) were your own employees (for whom you issued a W2), i.e., not contract personnel?	66. _____ employees
During the past year, how many of your employees (from Q66) quit?	67. _____ employees quitting
How many were terminated for reasons <u>other than</u> lack of business?	68. _____ employees terminated
How many of your total personnel (from Q65) were hourly people who worked on the shop floor?	69. _____ hourly shop floor personnel
How many of your shop floor workers (from Q69):	Number of these shop floor workers:
• Were represented by labor unions?	70. _____ in unions
• Were covered by company-subsidized health insurance, for which you paid at least \$3000 per worker?	71. _____ for whom you paid \geq \$3000/yr in health premiums
On average in the past year, how many hours per week did these shop workers (from Q69) work?	72. _____ average hours per week, per worker
In the past year, roughly what percent of your shop labor time was spent doing work manually or with hand tools? That is, what percent was spent doing manual or hand-tool assembly, packaging, finishing, or other light manufacturing work?	73. _____ % shop labor time doing manual or hand-tool work
In the past year, what percent of your personnel at this location (from Q65) used a computer or programmable machine controller at least once a week as part of their job?	74. _____ % personnel using computer or programmable machine controller
Design and Manufacturing:	
In the past year, roughly what percent of your sales were design-and-build jobs? By "design-and-build," we mean you had responsibility for designing the tool or prototype, NOT building to someone else's print.	75. _____ % sales from design-and-build jobs
In the past year, did you do any solid modeling at this location? Did you do any computer-aided engineering (CAE) analyses, such as finite element analysis, circle grid analysis, mold flow analysis, or kinematics?	76. Solid modeling? <input type="checkbox"/> Yes <input type="checkbox"/> No 77. CAE analysis? <input type="checkbox"/> Yes <input type="checkbox"/> No
In the past year, what percent of your labor hours (in design/engineering and in the shop) were due to customer-initiated engineering changes?	78. _____ % design/engineering 79. _____ % shop labor hours
How many regular-use, metal-removal machines (lathes, mills, EDMs, etc.) do you have? Please describe their age and features.	Regular-use, metal-removal machines 80. _____ Number of these that are: • Less than 5 years old 81. _____ • 5+ years, but upgraded 82. _____ • 20+ years old and not upgraded 83. _____ • 3-or-more axis 84. _____ • NC/CNC 85. _____ • Programmable, with CAM programs generated from CAD models 86. _____

<p>If Q86 >0: What percent of your CNC operators do CAM programming?</p>	<p>87. _____ % operators doing CAM programming If you do not do any CAD/CAM, enter "NA".</p>
<p>We are interested in your machine utilization, but only for your critical machines: CNCs, wire EDMs, planer mills, etc. How many of these large, critical metal-removal machines do you have? <i>For these machines,</i> do you routinely use written machine schedules that assign particular jobs to particular machines on particular dates?</p>	<p>88. _____ number of critical metal-removal machines</p> <p>89. Written schedules for critical machines? <input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>How many hours was your shop open for production last year? <i>Example:</i> Two 8-hr shifts per day * 5 days per week * 50 weeks = 4000. The next 2 questions refer only to those machines included in Q88. What was your total number of available machine hours in the past year? By "available," we mean <i>staffed</i> with someone assigned to run it or scheduled to run unattended. <i>Example:</i> Two CNCs were manned for two 8-hour shifts per day, 250 days per year. Thus total available machine-hours were: 2 machines x 16 hours/day x 250 days/year = 8000 machine hours.</p>	<p>90. _____ hours shop was open last year</p> <p>91. _____ available machine-hours, critical machines ("available" = staffed machine-hours, <i>plus</i> machine-hours scheduled to run unattended)</p>
<p>How many of those available hours (from Q91) were machines actually <u>running</u>? (Do NOT include any hours that the machines were idle or waiting, such as setup time, maintenance time, time spent resolving quality problems, etc.)</p>	<p>92. _____ running machine-hours, critical machines</p>
<p>How large is your production or factory area?</p>	<p>93. _____ sq. ft.</p>
<p>Do you have a crane capacity of 10 tons or more?</p>	<p>94. <input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>Quality Assurance: In the past year, what percent of shop labor time was spent doing rework?</p>	<p>95. _____ % shop labor time spent doing rework</p>
<p>In the past year, what was your scrap rate? By "scrap" we mean work you rejected internally due to errors, and had to restart with new material. If you can, please provide the dollar value of output scrapped (costs for wasted labor and machine time plus cost for ruined material). Otherwise, provide the percent of details or components scrapped. (Answer either Q96 <i>and</i> Q97, or just Q98)</p>	<p>Scrap Due to Errors (Do NOT Include Offal or Design Scrap): 96. \$ _____ cost of material ruined due to errors 97. \$ _____ total scrap cost (ruined material plus cost of wasted labor and machine time) OR 98. _____ % details or components scrapped</p>
<p>In the past year, what percent of the items you shipped were initially not accepted by your customers for quality reasons or not-to-spec condition?</p>	<p>99. _____ % initially not accepted due to not-to-spec</p>
<p>In the past year, did you conduct any formal, statistical machine capability studies? By "machine capability study," we mean taking repeated measurements on a machine's accuracy and consistency in doing a pre-defined set of standard cuts or movements.</p>	<p>100. <input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>In the past year, did you conduct any studies to identify recurring procedural errors? Examples of "procedural errors" include: pulling and cutting the wrong material, or sending a part or detail to heat treat with incomplete features.</p>	<p>101. <input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>Standard Shop Procedures <i>Do you routinely:</i></p> <ul style="list-style-type: none"> • Designate a formal project manager for your one-to-an-order type jobs? 102. <input type="checkbox"/> Yes <input type="checkbox"/> No • Use Gantt charts, PERT charts, or similar methods to track tasks and stages? 103. <input type="checkbox"/> Yes <input type="checkbox"/> No • Coordinate task schedules for different jobs to develop a single, written schedule for the entire shop? (A shop schedule shows when people and machines will be assigned to particular jobs or tasks.) 104. <input type="checkbox"/> Yes <input type="checkbox"/> No • Have accurate information on the percent complete (in terms of either calendar days or labor hours) on all current jobs? (By "accurate" we mean within +/- 5%.) 105. <input type="checkbox"/> Yes <input type="checkbox"/> No • Follow a formal procedure for approving new tool and gauge calibration contractors? 106. <input type="checkbox"/> Yes <input type="checkbox"/> No • Use a formal engineering change control system <i>that documents from/to, materials implications, and date?</i> 107. <input type="checkbox"/> Yes <input type="checkbox"/> No • Use a formal engineering change control system <i>that computes the resulting change in job cost and/or price?</i> 108. <input type="checkbox"/> Yes <input type="checkbox"/> No • Tag measuring/testing equipment with date of last and next calibration? 109. <input type="checkbox"/> Yes <input type="checkbox"/> No <p><i>Is it someone's regular responsibility to:</i></p> <ul style="list-style-type: none"> • Do a QA review on prints and PO's <i>before a quote is submitted?</i> 110. <input type="checkbox"/> Yes <input type="checkbox"/> No • Do a QA review on prints and PO's <i>before a job is released to the shop?</i> 111. <input type="checkbox"/> Yes <input type="checkbox"/> No • OK parts or details from subcontractors before they are released to the shop for further work? 112. <input type="checkbox"/> Yes <input type="checkbox"/> No 	