

# Semiconductor Machinery Manufacturing: 2002

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## 2002 Economic Census

*Manufacturing*

Industry Series



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-- Not applicable for this report.

**Table 1. Historical Statistics for the Industry: 2002 and Earlier Years**

[Data based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). For information on confidentiality protection, sampling error, nonsampling error, and explanation of terms, see note at end of table. For meaning of abbreviations and symbols, see introductory text]

Industry and year <sup>1</sup>	Com-panies <sup>2</sup>	All estab-lish-ments <sup>3</sup>	All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expenditures (\$1,000)	
			Number <sup>4</sup>	Payroll (\$1,000)	Number <sup>4</sup>	Hours (1,000)	Wages (\$1,000)					
333295, Semiconductor machinery manufacturing .....	2002..	259	292	33 807	2 281 041	13 035	25 867	604 314	4 444 606	4 401 742	8 938 683	496 135
	2001..	N	N	50 469	2 784 327	24 709	49 355	969 883	5 662 300	6 050 442	12 206 184	823 875
	2000..	N	N	50 430	2 959 863	24 813	49 133	1 102 936	11 636 044	9 802 740	20 807 230	814 273
	1999..	N	N	41 586	2 105 480	21 272	42 484	820 369	6 890 869	5 695 986	12 223 500	664 181
	1998..	N	N	43 995	1 777 586	23 083	37 177	687 479	4 592 769	5 274 879	10 070 847	980 608
	1997..	244	258	40 104	1 702 788	20 918	42 170	611 134	6 010 313	5 358 601	11 162 764	683 608

<sup>1</sup>Statistics presented for years ending in 2 and 7 are census data. Interim census years are derived in a representative sample of manufacturing establishments canvassed in the Annual Survey of Manufactures (ASM).

<sup>2</sup>For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

<sup>3</sup>Includes establishments with payroll at any time during the year.

<sup>4</sup>Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

Note: The data in this table are based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain sampling errors and nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

**Table 2. Industry Statistics for Selected States: 2002**

[States that are a disclosure or with less than 100 employees are not shown. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, explanation of terms, and geographical definitions, see note at end of table. For information on geographic areas followed by \*, see Appendix D. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	E <sup>1</sup>	All establishments <sup>2</sup>		All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number <sup>3</sup>	Payroll (\$1,000)	Number <sup>3</sup>	Hours (1,000)	Wages (\$1,000)				
<b>333295, Semiconductor machinery manufacturing</b>												
United States .....	2	292	166	33 807	2 281 041	13 035	25 867	604 314	4 444 606	4 401 742	8 938 683	496 135
Arizona .....	-	20	10	971	51 037	599	1 329	27 995	160 095	172 211	317 064	16 217
California .....	1	127	77	17 209	1 323 786	5 873	9 419	278 564	2 159 109	2 334 937	4 510 371	237 891
Colorado .....	-	6	4	482	23 054	355	1 063	14 558	58 770	117 541	165 225	6 668
Massachusetts .....	3	19	12	4 787	320 904	1 903	3 345	102 766	597 388	548 554	1 148 999	65 717
New Jersey .....	-	9	4	200	10 798	97	254	4 226	20 247	24 401	44 215	2 218
New York .....	-	14	10	986	52 291	399	2 245	16 276	121 269	137 346	266 790	9 122
Oregon .....	5	6	5	979	46 403	373	1 099	16 722	169 302	136 578	283 034	28 390
Pennsylvania .....	3	9	6	612	35 928	193	411	8 256	59 125	68 774	128 899	5 038
Texas .....	1	34	14	2 835	161 091	1 238	2 632	46 794	494 787	581 122	1 106 168	76 296

<sup>1</sup>Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data account for 10 percent or more of the figures shown: 1-10 to 19 percent; 2-20 to 29 percent; 3-30 to 39 percent; 4-40 to 49 percent; 5-50 to 59 percent; 6-60 to 69 percent; 7-70 to 79 percent; 8-80 to 89 percent; 9-90 percent or more.

<sup>2</sup>Includes establishments with payroll at any time during the year.

<sup>3</sup>Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

Note: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C. For geographical definitions, see Appendix D.

**Table 3. Detailed Statistics by Industry: 2002**

[Data based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). For information on confidentiality protection, sampling error, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Item	Value
<b>333295, Semiconductor machinery manufacturing</b>	
Companies <sup>1</sup> .....	number.. 259
All establishments <sup>2</sup> .....	number.. 292
Establishments with 1 to 19 employees .....	number.. 126
Establishments with 20 to 99 employees .....	number.. 98
Establishments with 100 employees or more .....	number.. 68
All employees <sup>3</sup> .....	number.. 33 807
Total compensation .....	\$1,000.. 2 652 820
Annual payroll .....	\$1,000.. 2 281 041
Total fringe benefits .....	\$1,000.. 371 779
Production workers, average for year .....	number.. 13 035
Production workers on March 12 .....	number.. 14 301
Production workers on May 12 .....	number.. 13 001
Production workers on August 12 .....	number.. 12 924
Production workers on November 12 .....	number.. 11 891
Production worker hours .....	1,000.. 25 867
Production worker wages .....	\$1,000.. 604 314
Total cost of materials .....	\$1,000.. 4 401 742
Materials, parts, containers, packaging, etc., used .....	\$1,000.. 3 938 637
Resales .....	\$1,000.. 342 367
Purchased fuels .....	\$1,000.. 6 264
Purchased electricity .....	\$1,000.. 55 386
Contract work .....	\$1,000.. 59 088
Quantity of electricity purchased for heat and power .....	1,000 kWh.. 733 706
Quantity of electricity generated less sold for heat and power .....	1,000 kWh.. 4 584
Total value of shipments .....	\$1,000.. 8 938 683
Primary products value of shipments .....	\$1,000.. 8 258 948
Secondary products value of shipments .....	\$1,000.. 123 781
Total miscellaneous receipts .....	\$1,000.. 555 954
Value of resales .....	\$1,000.. 455 216
Contract receipts .....	\$1,000.. 3 520
Other miscellaneous receipts .....	\$1,000.. 97 218
Primary products specialization ratio .....	percent.. 99
Value of primary products shipments made in all industries .....	\$1,000.. 8 403 368
Value of primary products shipments made in this industry .....	\$1,000.. 8 258 948
Value of primary products shipments made in other industries .....	\$1,000.. 144 420
Coverage ratio .....	percent.. 98
Value added .....	\$1,000.. 4 444 606
Total inventories, beginning of year .....	\$1,000.. 2 413 112
Finished goods inventories .....	\$1,000.. 371 095
Work-in-process inventories .....	\$1,000.. 785 990
Materials and supplies inventories .....	\$1,000.. 1 260 798
Total inventories, end of year .....	\$1,000.. 2 243 243
Finished goods inventories .....	\$1,000.. 378 445
Work-in-process inventories .....	\$1,000.. 686 305
Materials and supplies inventories .....	\$1,000.. 1 183 411
Gross value of depreciable assets (acquisition costs) at beginning of year .....	\$1,000.. 3 228 273
Total capital expenditures (new and used) .....	\$1,000.. 496 135
Buildings and other structures (new and used) .....	\$1,000.. 184 563
Machinery and equipment (new and used) .....	\$1,000.. 311 572
Automobiles, trucks, etc., for highway use .....	\$1,000.. 5 073
Computers and peripheral data processing equipment .....	\$1,000.. 56 580
All other expenditures for machinery and equipment .....	\$1,000.. 249 919
Total retirements .....	\$1,000.. 343 913
Gross value of depreciable assets at end of year .....	\$1,000.. 3 380 495
Depreciation charges during year .....	\$1,000.. 278 028
Total rental payments .....	\$1,000.. 121 982
Buildings and other structures .....	\$1,000.. 94 215
Machinery and equipment .....	\$1,000.. 27 767
Total other expenses <sup>4</sup> .....	\$1,000.. 677 592
Response coverage ratio <sup>5</sup> .....	percent.. 56
Repair and maintenance services of buildings and/or machinery <sup>4</sup> .....	\$1,000.. 36 038
Communications services <sup>4</sup> .....	\$1,000.. 32 458
Legal services <sup>4</sup> .....	\$1,000.. 43 851
Accounting, auditing, and bookkeeping services <sup>4</sup> .....	\$1,000.. 10 296
Advertising and promotional services <sup>4</sup> .....	\$1,000.. 17 368
Expensed computer hardware and supplies and purchased computer services <sup>4</sup> .....	\$1,000.. 16 985
Refuse removal (including hazardous waste) services <sup>4</sup> .....	\$1,000.. 2 428
Management consulting and administrative services <sup>4</sup> .....	\$1,000.. 89 693
Taxes and license fees <sup>4</sup> .....	\$1,000.. 15 324
All other expenses <sup>4</sup> .....	\$1,000.. 412 715

<sup>1</sup>For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

<sup>2</sup>Includes establishments with payroll at any time during the year.

<sup>3</sup>Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

<sup>4</sup>Based on Annual Survey of Manufactures (ASM) sample data.

<sup>5</sup>A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those Annual Survey of Manufactures (ASM) establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note 1: The amounts shown for other expenses reflect only those services that establishments purchase from other companies.

Note 2: The data in this table are based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain sampling errors and nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

**Table 4. Industry Statistics by Employment Size: 2002**

[Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note at end of table. For meaning of abbreviations and symbols, see introductory text]

Employment size class	E <sup>1</sup>	All establishments <sup>2</sup>	All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number <sup>3</sup>	Payroll (\$1,000)	Number <sup>3</sup>	Hours (1,000)	Wages (\$1,000)				
333295, Semiconductor machinery manufacturing											
All establishments .....	2	292	33 807	2 281 041	13 035	25 867	604 314	4 444 606	4 401 742	8 938 683	496 135
Establishments with—											
1 to 4 employees .....	8	67	140	7 209	76	155	3 035	18 952	15 381	34 915	D
5 to 9 employees .....	7	27	c	D	D	D	D	D	D	D	D
10 to 19 employees .....	5	32	439	26 162	214	598	9 097	52 748	41 015	93 644	3 640
20 to 49 employees .....	2	62	1 942	98 182	1 021	2 930	41 401	191 072	155 269	347 468	16 576
50 to 99 employees .....	2	36	2 607	135 891	1 354	2 883	51 669	302 988	231 109	557 869	29 020
100 to 249 employees .....	2	40	6 481	346 423	3 249	7 474	146 472	748 322	689 537	1 408 193	110 394
250 to 499 employees .....	5	16	5 294	337 349	1 828	4 479	80 022	639 111	794 837	1 423 737	67 388
500 to 999 employees .....	1	6	4 197	288 232	1 477	2 841	70 883	673 837	509 647	1 188 954	82 203
1,000 to 2,499 employees .....	1	4	i	D	D	D	D	D	D	D	D
2,500 employees or more .....	—	2	i	D	D	D	D	D	D	D	D
Administrative records <sup>4</sup> .....	9	73	257	15 208	129	258	6 008	36 568	29 472	66 044	2 903

<sup>1</sup>Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data account for 10 percent or more of the figures shown: 1—10 to 19 percent; 2—20 to 29 percent; 3—30 to 39 percent; 4—40 to 49 percent; 5—50 to 59 percent; 6—60 to 69 percent; 7—70 to 79 percent; 8—80 to 89 percent; 9—90 percent or more.

<sup>2</sup>Includes establishments with payroll at any time during the year.

<sup>3</sup>Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

<sup>4</sup>Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Note: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C. For geographical definitions, see Appendix D.

**Table 5. Industry Statistics by Primary Product Class Specialization: 2002**

[Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note at end of table. For meaning of abbreviations and symbols, see introductory text]

Industry or product class code	Industry or primary product class	All establishments <sup>1</sup>	All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number <sup>2</sup>	Payroll (\$1,000)	Number <sup>2</sup>	Hours (1,000)	Wages (\$1,000)				
333295	Semiconductor machinery manufacturing .....	292	33 807	2 281 041	13 035	25 867	604 314	4 444 606	4 401 742	8 938 683	496 135
3332950	Semiconductor manufacturing equipment (except furnaces and ovens, instruments, and photographic) .....	292	33 807	2 281 041	13 035	25 867	604 314	4 444 606	4 401 742	8 938 683	496 135

<sup>1</sup>Includes establishments with payroll at any time during the year.

<sup>2</sup>Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

Note: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C. For geographical definitions, see Appendix D.

**Table 6a. Products Statistics: 2002 and 1997**

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)
333295	Semiconductor machinery manufacturing .....	2002.. N 1997.. N	X X	X X	8 403 368 10 072 595
3332950	Semiconductor manufacturing equipment (except furnaces and ovens, instruments, and photographic) .....	2002.. N 1997.. N	X X	X X	8 403 368 10 072 595
33329501	Semiconductor wafer processing equipment, thin layer chemical vapor deposition .....	2002.. N 1997.. N	X X	X X	D 1 029 182
3332950106	Semiconductor wafer processing equipment, thin layer chemical vapor deposition .....	2002.. 23 1997.. 11	X X	X X	D 1 029 182
33329502	Semiconductor wafer processing equipment, thin layer physical vapor deposition .....	2002.. N 1997.. N	X X	X X	700 253 658 280
3332950211	Semiconductor wafer processing equipment, thin layer physical vapor deposition .....	2002.. 22 1997.. 8	X X	X X	700 253 658 280
33329503	Semiconductor wafer processing equipment, plasma etch .....	2002.. N 1997.. N	X X	X X	D 793 702
3332950326	Semiconductor wafer processing equipment, plasma etch .....	2002.. 6 1997.. 10	X X	X X	D 793 702
33329504	Other semiconductor equipment .....	2002.. N 1997.. N	X X	X X	3 998 339 4 987 189
3332950401	Micro lithography, including aligners and other lithography systems .....	2002.. 14 1997.. 10	X X	X X	404 047 430 515
3332950416	Semiconductor wafer processing equipment, thin layer epitaxial growth deposition .....	2002.. 6 1997.. 6	X X	X X	128 565 95 874
3332950421	Semiconductor wafer processing equipment, wet etch .....	2002.. 11 1997.. 11	X X	X X	244 766 262 057
3332950434	Semiconductor wafer processing equipment, reactive ion etch and stripping systems .....	2002.. 4 1997.. -	X N	X -	D N
3332950441	Ion implantation including current and voltage ion implanters .....	2002.. 43 1997.. 15	X X	X X	825 897 867 453
3332950446	Wafer processing equipment used to saw (slice) blank wafers from crystal boules .....	2002.. 3 1997.. 2	X X	X X	D D
3332950451	Wafer processing equipment used to grind and polish semiconductor wafers .....	2002.. 3 1997.. 4	X X	X X	5 673 D
3332950456	Wafer processing equipment, pattern generating apparatus used to produce masks and reticles from photoresist coated substrates (except focused ion beam milling machines) .....	2002.. 9 1997.. 11	X X	X X	250 638 315 270
3332950461	Other semiconductor wafer processing equipment .....	2002.. 48 1997.. 59	X X	X X	2 006 459 1 987 802
3332950468	Semiconductor assembly dicing machines, including saws and scribing-fracturing machines, die bonding, and wire bonding .....	2002.. 6 1997.. -	X N	X -	12 905 N
33329505	Parts for semiconductor manufacturing machinery, including packaging equipment .....	2002.. N 1997.. N	X X	X X	1 767 351 2 350 611
3332950581	Packaging equipment, including mold and seal equipment and finish and mark equipment .....	2002.. 8 1997.. 9	X X	X X	D 64 116
3332950586	Other assembly and packaging equipment, including lead frame inserting machines .....	2002.. 10 1997.. 14	X X	X X	103 848 D
3332950591	Parts for machine tools used to produce and process semiconductor wafers .....	2002.. 17 1997.. 19	X X	X X	199 422 66 395
3332950596	Parts for ion beam and plasma machines used to process semiconductor wafers and designs by removal of material .....	2002.. 2 1997.. 8	X X	X X	D 70 161
33329505A1	Parts for ion implanters used for doping semiconductor wafers .....	2002.. 3 1997.. 5	X X	X X	D 102 996
33329505A6	Parts for apparatus used for the projection of circuit patterns on sensitized semiconductor materials .....	2002.. 1 1997.. 1	X X	X X	D D
33329505B1	Parts for pattern generating apparatus used to produce masks and reticles from photoresist coated substrates .....	2002.. 2 1997.. 5	X X	X X	D D
33329505B6	Other parts for semiconductor manufacturing machinery .....	2002.. 41 1997.. 50	X X	X X	1 090 965 1 172 552
3332950Y	Semiconductor manufacturing equipment (except furnaces and ovens, instruments, and photographs), nsk, total .....	2002.. N 1997.. N	X X	X X	152 390 253 631
3332950YWW	Semiconductor manufacturing equipment (except furnaces and ovens, instruments, and photographs), nsk, for nonadministrative-record establishments .....	2002.. N 1997.. N	X X	X X	116 098 228 201
3332950YWY	Semiconductor manufacturing equipment (except furnaces and ovens, instruments, and photographs), nsk, for administrative-record establishments .....	2002.. N 1997.. N	X X	X X	36 292 25 430

Note 1: For some establishments, data have been estimated from central unit values that are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: p-10 to 19 percent estimated; q-20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Note 2: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

Table 6b. **Product Class Shipments for Selected States: 2002 and 1997**

[Not applicable for this report.]

**Table 7. Materials Consumed by Kind: 2002 and 1997**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Material code	Material consumed	Quantity	Delivered cost (\$1,000)
333295	Semiconductor machinery manufacturing		
0090001	Total materials .....	2002.. X	3 938 637
		1997.. X	4 820 559
001900B1	Electrical transmission, distribution, and control equipment .....	2002.. X	236 526
		1997.. X	249 994
33399601	Fluid power pumps, motors, and hydrostatic transmissions (hydraulic and pneumatic) .....	2002.. X	100 525
		1997.. X	113 985
33391101	Other pumps and pump parts, excluding fluid power (complete assemblies) .....	2002.. X	157 598
		1997.. X	172 452
33291207	Fluid power valves (hydraulic and pneumatic) .....	2002.. X	76 769
		1997.. X	85 866
33399501	Fluid power cylinders and rotary actuators (hydraulic and pneumatic) .....	2002.. X	D
		1997.. X	20 957
33291203	Fluid power hose and tube fittings and assemblies (hydraulic and pneumatic) .....	2002.. X	53 685
		1997.. X	57 797
33399901	Fluid power filters (hydraulic and pneumatic) .....	2002.. X	37 869
		1997.. X	39 041
00190089	Other fluid power products, hydraulic and pneumatic .....	2002.. X	D
		1997.. X	37 579
33272203	Metal bolts, nuts, screws, washers, rivets, and other screw machine products .....	2002.. X	49 149
		1997.. X	55 701
332000A1	Metal tanks, heat exchangers, steam condensers, and other boiler products (fabricated steel plate, and weldments) .....	2002.. X	30 791
		1997.. X	48 101
33291901	Metal pipe, valves, and pipe fittings (excluding forgings) .....	2002.. X	38 761
		1997.. X	41 042
33200051	Other fabricated metal products (excluding fluid power products and forgings) .....	2002.. X	192 297
		1997.. X	202 344
33151001	Iron and steel castings (rough and semifinished) .....	2002.. X	D
		1997.. X	35 507
33152005	Aluminum and aluminum-base alloy castings (rough and semifinished) .....	2002.. X	75 894
		1997.. X	79 590
33152003	Other nonferrous metalcastings, rough and semifinished (excluding aluminum and aluminum-base alloy) .....	2002.. X	D
		1997.. X	D
33120007	Steel bars, bar shapes, and plate (excluding castings, forgings, and fabricated metal products) .....	2002.. X	20 435
		1997.. X	30 073
33120019	Steel structural shapes and sheet piling (excluding castings, forgings, and fabricated metal products) .....	2002.. X	D
		1997.. X	28 283
33120091	All other steel shapes and forms (excluding castings, forgings, fabricated metal products, bars, bar shapes, plate, sheet, strip, structural shapes, and sheet piling) .....	2002.. X	D
		1997.. X	5 916
33100055	All other aluminum and aluminum-base alloy shapes and forms (excluding castings, forgings, and fabricated metal products) .....	2002.. X	8 608
		1997.. X	D
33100077	Other nonferrous shapes and forms (excluding castings, forgings, and fabricated metal products) .....	2002.. X	D
		1997.. X	D
33531225	Fractional horsepower electric motors and generators (less than 1 hp) .....	2002.. X	4 131
		1997.. -	N
33531221	Integral horsepower electric motors and generators (1 hp or more) .....	2002.. X	D
		1997.. X	66 805
33299101	Ball and roller bearings (mounted or unmounted) .....	2002.. X	D
		1997.. X	23 128
33361200	Mechanical speed changers, gears, and industrial high-speed drives .....	2002.. X	3 764
		1997.. X	5 513
33141911	Gold and other precious metals, all forms (including ingot, sheet, strip, solder, plating, electrodes, etc.) .....	2002.. X	D
		1997.. -	N
33441200	Printed circuit boards (without inserted components) for electronic circuitry .....	2002.. X	5 269
		1997.. -	N
001900C4	Printed circuit assemblies, loaded boards, and modules (printed circuit boards with inserted electronic components) .....	2002.. X	48 825
		1997.. -	N
32212031	Filter paper .....	2002.. X	D
		1997.. X	D
00970099	All other materials and components, parts, containers, and supplies .....	2002.. X	2 038 830
		1997.. X	2 215 591
00971000	Materials, ingredients, containers, and supplies, nsk .....	2002.. X	460 012
		1997.. X	981 273

Note 1: For some establishments, data have been estimated from central unit values that are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: p-10 to 19 percent estimated; q-20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Note 2: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.