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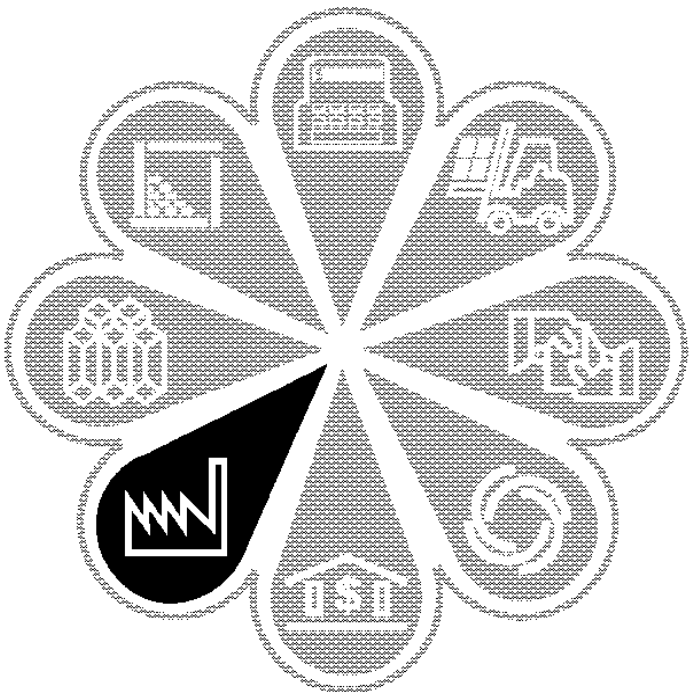
1992 Census of Manufactures

MC92-I-35C

INDUSTRY SERIES

Metalworking Machinery and Equipment

Industries 3541, 3542, 3543, 3544, 3545, 3546, 3547, 3548, and 3549



U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

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U.S. Department of Commerce
Ronald H. Brown, Secretary
David J. Barram, Deputy Secretary

Economics and Statistics Administration
Everett M. Ehrlich, Under Secretary
for Economic Affairs

BUREAU OF THE CENSUS
Martha Farnsworth Riche, Director

Acknowledgments

Many persons participated in the various activities of the 1992 Census of Manufactures. The overall planning and review of the census operations were performed by the Economic Census Staff of the Economic Planning and Coordination Division.

Manufacturing and Construction Division prepared this report. **David W. Cartwright**, Assistant Chief for Census and Related Programs, was responsible for the overall planning, management, and coordination of the census of manufactures. Planning and implementation were under the direction of **Kenneth I. Hansen,** Chief, Metals and Industrial Machinery Branch, assisted by **J. Michael Brown**, Section Chief, with primary staff assistance by **Mary Jane Gwynn.**

Brian Greenberg, Assistant Chief for Research and Methodology Programs, assisted by **Stacey Cole**, provided the mathematical and statistical techniques as well as the coverage operations.

Baruti A. Taylor, under the direction of **A. William Visnansky,** Chief, Special Reports Branch, performed overall coordination of the publication process. **Julius Smith, Jr.** and **Andrew W. Hait** provided primary staff assistance.

The Economic Planning and Coordination Division provided the computer processing procedures. **Shirin A. Ahmed,** Assistant Chief for Post Data Collection Processing, was responsible for editing and the analysts' interactive database review and correction system. Design and specifications were prepared under the supervision of **Dennis L. Wagner,** Chief, Post Collection Census Branch, assisted by **S. Mark Schmidt** and **Robert A. Rosati.**

The staff of the Data Preparation Division, **Judith N. Petty,** Chief, performed mailout preparation and receipt operations, clerical and analytical review activities, data keying, and geocoding review.

The Geography Division staff developed geographic coding procedures and associated computer programs.

The Economic Statistical Methods and Programming Division, **Charles P. Pautler, Jr.,** Chief, developed and coordinated the computer processing systems. **Martin S. Harahush,** Assistant Chief for Quinquennial Programs, was responsible for design and implementation of the computer systems. **Gary T. Sheridan,** Chief, Manufactures and Construction Branch, assisted by **Gerald S. Turnage**, supervised the preparation of the computer programs.

Computer Services Division, **Marvin D. Raines,** Chief, performed the computer processing.

The staff of the Administrative and Publications Services Division, **Walter C. Odom,** Chief, performed publication planning, design, composition, editorial review, and printing planning and procurement for publications and report forms. **Cynthia G. Brooks** provided publication coordination and editing.

Special acknowledgment is also due the many businesses whose cooperation has contributed to the publication of these data.

If you have any questions concerning the statistics in this report, call 301-457-4755.

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Introduction to the Economic Census

PURPOSES AND USES OF THE ECONOMIC CENSUS

The economic census is the major source of facts about the structure and functioning of the Nation's economy. It provides essential information for government, business, industry, and the general public.

The economic census furnishes an important part of the framework for such composite measures as the gross domestic product, input/ output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policymaking agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic census every 5 years, covering years ending in 2 and 7. The 1992 Economic Census consists of the following eight censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Financial, Insurance, and Real Estate Industries
- Census of Transportation, Communications, and Utilities
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1992 Census of Agriculture and 1992 Census of Governments are conducted separately.) The next economic census is scheduled to be taken in 1998 covering the year 1997.

AVAILABILITY OF THE DATA

The results of the economic census are available in printed reports for sale by the U.S. Government Printing Office and on compact discs for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Bureau of the Census, Washington, DC 20233-8300. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State data centers in every State as well as business and industry data centers in many States also supply economic census statistics.

WHAT'S NEW IN 1992

The 1992 Economic Census covers more of the economy than any previous census. New for 1992 are data on communications, utilities, financial, insurance, and real estate, as well as coverage of more transportation industries. The economic, agriculture, and governments censuses now collectively cover nearly 98 percent of all economic activity.

Among other changes, new 1992 definitions affect the boundaries of about a third of all metropolitan areas. Also, the Survey of Women-Owned Businesses has now been expanded to include all corporations.

HISTORICAL INFORMATION

The economic census has been taken as an integrated program at 5-year intervals since 1967 and before that for 1963, 1958, and 1954. Prior to that time, the individual subcomponents of the economic census were taken separately at varying intervals.

The economic census traces its beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 Manufactures Census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 Economic Census was the first census to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. It was the first census to be taken by mail, using lists of firms provided by the administrative records of other Federal agencies. Since 1963, administrative records also have been used to provide basic statistics for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic census, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The census of construction industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The census of transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks, but expanded in 1987 to cover business establishments in several transportation industries. For 1992, these statistics are incorporated into a broadened census of transportation, communications, and utilities. Also new for 1992 is the census of financial, insurance, and real estate industries. This is part of a gradual expansion in coverage of industries previously subjected to government regulation.

The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic census in 1972 along with the Survey of Women-Owned Businesses.

An economic census has also been taken in Puerto Rico since 1909, in the Virgin Islands of the United States and Guam since 1958, and in the Commonwealth of the Northern Mariana Islands since 1982.

Statistical reports from the 1987 and earlier censuses provide historical figures for the study of long-term time series and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the census provides complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, with the results appearing in publication series such as Current Business Reports (retail and wholesale trade and service industries), the Annual Survey of Manufactures, Current Industrial Reports, and the Quarterly Financial Report. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the census. The County Business Patterns program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1992 Economic Census and Related Statistics*. More information on the methodology, procedures, and history of the census will be published in the *History of the 1992 Economic Census*. Contact Customer Services for information on availability.

Census of Manufactures

GENERAL

This report, from the 1992 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as manufacturers' shipments to the federal government and concentration ratios in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan areas (MA's), counties, and places. Selected statistical totals for ''all manufacturing'' have been shown in the State reports for MA's with 250 employees or more and for counties and places with 500 employees or more.

The *General Summary* report contains industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text discusses the relationship of value added by manufacture to national income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

SCOPE OF CENSUS AND DEFINITION OF MANUFACTURING

The 1992 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1] This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

RELATIONSHIP BETWEEN ANNUAL SURVEY OF MANUFACTURES AND CENSUS OF MANUFACTURES

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 62,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

ESTABLISHMENT BASIS OF REPORTING

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1992, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

MANUFACTURING UNIVERSE AND CENSUS REPORT FORMS

The 1992 Census of Manufactures universe includes approximately 380,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small single-establishment companies not sent a report form.** In the 1992 Census of Manufactures, approximately 143,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material ''not specified by kind'' (n.s.k.) categories.

   The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

   Sometimes these administrative-records cases were only given a two- or three-digit SIC group. For the 1992 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as ''not elsewhere classified'' (n.e.c.) within the given two- or three-digit industry groups.

   As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

   The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments sent a report form.** The over 237,000 establishments covered in the mail canvass were divided into three groups:

   a. **ASM sample establishments.** This group consisted of approximately 62,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see Appendix B, Annual Survey of Manufactures).

      In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is 1 of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM).** Approximately 112,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive 1 of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM).** This group consisted of approximately 63,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or ''short'' form was used. These establishments received 1 of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

AUXILIARIES

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 11,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1992 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include the following:

1. Program planning, including sales research and coordination of purchasing, production, and distribution
2. Company purchasing, including general contracts and purchasing methods
3. Company financial policy and accounting
4. General engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations
5. Company personnel matters
6. Legal and patent matters

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

INDUSTRY CLASSIFICATION OF ESTABLISHMENTS

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/ 77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1992, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/ 77 and a reduction of three-digit groups from 143 in 1972/ 77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be ''frozen'' in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or if the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see Appendix B, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The results of these rules covering the switching of plants from one industry classification to another are that, at the aggregate level, some industries comprise different mixes of establishments between survey years and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-records cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that

put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED WITH VALUE OF PRODUCT SHIPMENTS

This report shows value of shipments data for industries and products. In tables 1a through 5b, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed except for new capital expenditures. However, the suppressed data are included in higher-level totals. A separate disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1992 Census of Manufactures may be obtained on computer diskette or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Manufacturing and Construction Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

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SIC's 357, 36-39	Bruce Goldhirsch	301-457-4817
Import/ export publications	Foreign Trade Division	301-457-3041
Industry analysis and forecasting	International Trade Administration	202-377-4356

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendixes]

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production-worker hours	1a	1b	2	3a	4	5a					
Production-worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digit)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a							5b			
Coverage	1a							5b			

*Number of companies with shipments of more than $100 thousand.

Contents

Metalworking Machinery and Equipment

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Description of Industries and Summary of Findings

This report shows 1992 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code	and title
3541	Machine Tools, Metal Cutting Types
3542	Machine Tools, Metal Forming Types
3543	Industrial Patterns
3544	Special Dies, Tools, Jigs, and Fixtures
3545	Machine Tool Accessories
3546	Power-Driven Handtools
3547	Rolling Mill Machinery
3548	Welding Apparatus
3549	Metalworking Machinery, N.E.C.

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the ''product mix'' is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Establishment data were tabulated based on industry definitions included in the *1987 Standard Industrial Classification (SIC) Manual*[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1992 and 1987 censuses is shown in appendix C. This appendix presents, in tabular form, the linkage from 1992 to 1987, and 1987 to 1992.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 3541, MACHINE TOOLS, METAL CUTTING TYPES

This industry is made up of establishments primarily engaged in manufacturing metal cutting type machine tools, not supported in the hands of an operator when in use, that shape metal by cutting or use of electrical techniques; the rebuilding of such machine tools, and the manufacture of replacement parts for them. Also included in this industry are metalworking machine tools designed primarily for home workshops. Establishments primarily engaged in the manufacture of electric and gas welding and soldering equipment are classified in industry 3548, and those manufacturing portable power-driven handtools are classified in industry 3546.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3541, Machine Tools, Metal Cutting Types, had employment of 27.0 thousand. The employment figure was 15 percent below the 31.7 thousand reported in 1987.

The leading States in employment in 1992 were Ohio, Michigan, Illinois, and New York, accounting for approximately 55 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 54 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $3.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3541 shipped $2.8 billion of machine tools, metal cutting types, considered primary to the industry, $317.4 million of secondary products, and had $413.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio

[1] *Standard Industrial Classification Manual: 1987.* For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

of primary products to the total of both secondary and primary products shipped by establishments in this industry was 90 percent (specialization ratio). In 1987, the specialization ratio was 83 percent.

Establishments in this industry also accounted for 93 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 93 percent.

The products primary to industry 3541, no matter in what industry they were produced, appear in table 6a and aggregate to $3.1 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the machine tools, metal cutting types, industry amounted to $1.8 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 3 percent of the total value of shipments.

INDUSTRY 3542, MACHINE TOOLS, METAL FORMING TYPES

This industry is made up of establishments primarily engaged in manufacturing metal forming machine tools, not supported in the hands of an operator while in use, for pressing, hammering, extruding, shearing, die-casting, or otherwise forming metal into shape. This industry also includes the rebuilding of such machine tools and the manufacture of repair parts for them. Establishments primarily engaged in the manufacture of electric and gas welding equipment and soldering equipment are classified in industry 3548; those manufacturing portable power-driven handtools are classified in industry 3546; and those manufacturing rolling mill machinery and equipment are classified in industry 3547.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3542, Machine Tools, Metal Forming Types, had employment of 12.2 thousand. The employment figure was 12 percent below the 13.8 thousand reported in 1987. Compared with 1991, employment decreased 10 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Ohio, Illinois, Michigan, and New York, accounting for approximately 66 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 68 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $1.5 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3542 shipped $1.2 billion of machine tools, metal forming types, considered primary to the industry, $114.7 million of secondary products, and had $94.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 92 percent (specialization ratio). In 1987, the specialization ratio was 91 percent.

Establishments in this industry also accounted for 89 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 87 percent.

The products primary to industry 3542, no matter in what industry they were produced, appear in table 6a and aggregate to $1.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the machine tools, metal forming types, industry amounted to $700.1 million. Data on specific materials consumed appear in table 7.

No establishments in this industry were excluded from the mail portion of the census. However, for a small number of establishments, reports were not received at the time the data were tabulated. For these establishments data were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of the total value of shipments.

INDUSTRY 3543, INDUSTRIAL PATTERNS

This industry is made up of establishments primarily engaged in manufacturing industrial patterns.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3543, Industrial Patterns, had employment of 7.9 thousand. The employment figure was 8 percent below the 8.6 thousand reported in 1987.

The leading States in employment in 1992 were Michigan, Ohio, Wisconsin, and Tennessee, accounting for approximately 52 percent of the industry's employment. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $539.0 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry

3543 shipped $485.8 million of industrial patterns considered primary to the industry, $26.6 million of secondary products, and had $26.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 92 percent.

Establishments in this industry also accounted for 72 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 80 percent.

The products primary to industry 3543, no matter in what industry they were produced, appear in table 6a and aggregate to $672.3 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the industrial patterns industry amounted to $125.7 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 13 percent of the total value of shipments.

INDUSTRY 3544, SPECIAL DIES, TOOLS, JIGS, AND FIXTURES

This industry is made up of establishments commonly known as contract tool and die shops and primarily engaged in manufacturing, on a job or order basis, special tools and fixtures for use with machine tools, hammers, die-casting machines, and presses. The products of establishments classified in this industry include a wide variety of special toolings, such as dies; punches; die sets and components, and subpresses; jigs and fixtures; and special checking devices. Establishments primarily engaged in manufacturing molds for die-casting and foundry casting; metal molds for plaster working, rubber working, plastics working, glass working and similar machinery are also included. Establishments primarily engaged in manufacturing molds for heavy steel ingots are classified in industry 3321, and those manufacturing cutting dies, except metal cutting, are classified in industry 3423.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3544, Special Dies, Tools, Jigs, and Fixtures, had employment of 111.4 thousand. The employment figure was 3 percent below the 114.4 thousand reported in 1987.

The leading States in employment in 1992 were Michigan, Ohio, Illinois, and Pennsylvania, accounting for approximately 55 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 54 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $9.3 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3544 shipped $8.2 billion of special dies, tools, jigs, and fixtures considered primary to the industry, $507.2 million of secondary products, and had $557.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio also was 94 percent.

Establishments in this industry also accounted for 80 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 82 percent.

The products primary to industry 3544, no matter in what industry they were produced, appear in table 6a and aggregate to $10.3 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the special dies, tools, jigs, and fixtures industry amounted to $2.7 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 11 percent of the total value of shipments.

INDUSTRY 3545, MACHINE TOOL ACCESSORIES

This industry is made up of establishments primarily engaged in manufacturing cutting tools, machinists' precision measuring tools, and attachments and accessories for machine tools and for other metalworking machinery, not elsewhere classified. Establishments primarily engaged in manufacturing handtools, except power-driven types, are classified in industry group 342.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3545, Machine Tool Accessories, had employment of 42.7 thousand. The employment figure was 12 percent below the

48.5 thousand reported in 1987. Compared with 1991, employment decreased 17 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Michigan, Ohio, Illinois, and Massachusetts, accounting for approximately 49 percent of the industry's employment. These same States were the leaders in 1987 when they also accounted for 49 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $3.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3545 shipped $3.3 billion of machine tool accessories considered primary to the industry, $187.7 million of secondary products, and had $286.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 95 percent (specialization ratio). In 1987, the specialization ratio was 94 percent.

Establishments in this industry also accounted for 92 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 92 percent.

The products primary to industry 3545, no matter in what industry they were produced, appear in table 6a and aggregate to $3.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the machine tool accessories industry amounted to $1.1 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 8 percent of the total value of shipments.

INDUSTRY 3546, POWER-DRIVEN HANDTOOLS

This industry is made up of establishments primarily engaged in manufacturing power-driven handtools, such as drills and drilling tools, pneumatic and snagging grinders, and electric hammers. Establishments primarily engaged in manufacturing metal cutting type and metal forming type machines (including home workshop tools) which are not supported in the hands of an operator are classified in industries 3541 and 3542; and those primarily manufacturing power-driven heavy construction or mining handtools are classified in industry group 353.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3546, Power-Driven Handtools, had employment of 16.1 thousand. The employment figure was 4 percent below the 16.8 thousand reported in 1987. Compared with 1991, employment decreased 8 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Arkansas, North Carolina, Ohio, and South Carolina. This represents a shift from 1987 when North Carolina, Arkansas, Tennessee, and Arizona were the leading States.

The total value of shipments for establishments classified in this industry was $2.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3546 shipped $2.1 billion of power-driven handtools considered primary to the industry, $377.7 million of secondary products, and had $397.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 85 percent (specialization ratio). In 1987, the specialization ratio was 83 percent.

Establishments in this industry also accounted for 87 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 85 percent.

The products primary to industry 3546, no matter in what industry they were produced, appear in table 6a and aggregate to $2.4 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the power-driven handtools industry amounted to $1.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 15 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of the total value of shipments.

INDUSTRY 3547, ROLLING MILL MACHINERY

This industry is made up of establishments primarily engaged in manufacturing rolling mill machinery and processing equipment for metal production, such as cold forming mills, structural mills, and finishing equipment.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3547, Rolling Mill Machinery, had employment of 5.4 thousand. The employment figure was 38 percent above the 3.9 thousand reported in 1987. Compared with 1991, employment increased 38 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Massachusetts, Michigan, Ohio, and Pennsylvania. This represents a shift from 1987 when Ohio, Pennsylvania, Massachusetts, and Indiana were the leading States.

The total value of shipments for establishments classified in this industry was $602.8 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3547 shipped $518.7 million of rolling mill machinery products considered primary to the industry, $30.2 million of secondary products, and had $53.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 94 percent (specialization ratio). In 1987, the specialization ratio was 92 percent.

Establishments in this industry also accounted for 95 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 94 percent.

The products primary to industry 3547, no matter in what industry they were produced, appear in table 6a and aggregate to $544.4 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the rolling mill machinery industry amounted to $288.6 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 23 percent of the total value of shipments.

INDUSTRY 3548, WELDING APPARATUS

This industry is made up of establishments primarily engaged in manufacturing electric and gas welding and soldering equipment and accessories. Also included are establishments primarily engaged in coating welding wire from purchased wire or from wire drawn in the same establishment. Establishments primarily engaged in manufacturing handheld soldering irons are classified in industry 3423, and those manufacturing electron beam, ultrasonic, and laser welding equipment are classified in industry 3699.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3548, Welding Apparatus, had employment of 19.8 thousand. The employment figure was 6 percent above the 18.7 thousand reported in 1987.

The leading States in employment in 1992 were Ohio, Michigan, Wisconsin, and California, accounting for approximately 56 percent of the industry's employment. This represents a shift from 1987 when Ohio, Michigan, Wisconsin, and Pennsylvania were the leading States.

The total value of shipments for establishments classified in this industry was $2.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3548 shipped $2.3 billion of welding apparatus considered primary to the industry, $258.0 million of secondary products, and had $168.9 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 90 percent (specialization ratio). In 1987, the specialization ratio also was 90 percent.

Establishments in this industry also accounted for 96 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 92 percent.

The products primary to industry 3548, no matter in what industry they were produced, appear in table 6a and aggregate to $2.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the welding apparatus industry amounted to $1.3 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were

tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of the total value of shipments.

INDUSTRY 3549, METALWORKING MACHINERY, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing metalworking machinery, not elsewhere classified. Establishments primarily engaged in manufacturing automotive maintenance equipment are classified in industry 3559.

The 1992 definition of this industry is the same as that used in the 1987 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1992 Census of Manufactures, Industry 3549, Metalworking Machinery, N.E.C., had employment of 13.2 thousand. The employment figure was 17 percent above the 11.3 thousand reported in 1987. Compared with 1991, employment increased 21 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Michigan, Ohio, Illinois, and Wisconsin, accounting for approximately 54 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 53 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $1.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3549 shipped $1.3 billion of metalworking machinery, not elsewhere classified, considered primary to the industry, $190.3 million of secondary products, and had $116.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 87 percent (specialization ratio). In 1987, the specialization ratio was 89 percent.

Establishments in this industry also accounted for 89 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 87 percent.

The products primary to industry 3549, no matter in what industry they were produced, appear in table 6a and aggregate to $1.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the metalworking machinery, not elsewhere classified, industry amounted to $687.6 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of the total value of shipments.

Table 1a. Historical Statistics for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios: Specialization[7] (percent)	Ratios: Coverage[8] (percent)
INDUSTRY 3541, MACHINE TOOLS, METAL CUTTING TYPES															
1992 Census	391	422	220	27.0	982.1	15.2	32.2	498.5	1 840.9	1 762.0	3 567.8	82.4	1 221.7	90	93
1991 ASM	(NA)	(NA)	(NA)	28.0	931.9	16.5	34.7	503.4	1 664.0	1 629.7	3 369.7	66.4	1 145.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	30.3	1 002.2	18.2	37.8	534.2	1 890.3	1 682.8	3 606.8	84.2	1 261.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	31.0	991.5	18.4	37.8	531.4	2 112.7	1 629.8	3 622.9	94.6	1 252.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	29.9	940.2	17.7	35.8	484.0	1 828.1	1 404.2	3 137.8	64.5	1 093.3	(NA)	(NA)
1987 Census	381	417	232	31.7	921.5	18.2	35.4	465.7	1 668.7	1 399.5	3 189.5	61.2	1 056.8	83	93
1986 ASM	(NA)	(NA)	(NA)	38.6	1 088.8	22.0	43.6	557.0	1 823.8	1 538.0	3 456.1	62.7	1 215.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	42.8	1 127.6	24.9	47.7	592.6	2 000.0	1 471.6	3 377.0	91.6	1 349.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	42.4	1 053.9	24.7	46.5	541.7	1 820.0	1 369.5	3 211.6	108.8	1 196.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	43.0	997.1	24.5	45.9	512.1	1 612.7	1 100.0	2 880.9	104.8	1 281.6	(NA)	(NA)
1982 Census	865	942	293	58.3	1 335.0	33.9	63.6	709.2	2 516.2	1 598.3	4 411.5	157.7	1 435.5	92	93
1981 ASM	(NA)	(NA)	(NA)	74.3	1 633.0	47.9	98.5	964.1	3 739.9	2 187.3	5 865.3	233.2	1 485.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	72.8	1 504.0	47.8	98.8	889.5	3 349.2	2 026.1	5 227.6	171.6	1 419.4	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	69.1	1 304.1	45.7	95.9	786.9	2 833.8	1 736.9	4 389.0	147.6	1 242.2	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	64.3	1 120.7	42.2	88.2	679.6	2 267.0	1 417.7	3 611.8	102.0	1 012.3	(NA)	(NA)
1977 Census	872	917	306	59.4	949.0	37.2	76.3	540.7	1 866.1	1 047.7	2 812.7	80.4	877.9	87	92
INDUSTRY 3542, MACHINE TOOLS, METAL FORMING TYPES															
1992 Census	211	217	114	12.2	417.6	7.8	15.8	236.9	728.6	700.1	1 450.9	40.4	425.7	92	89
1991 ASM	(NA)	(NA)	(NA)	13.5	443.5	8.5	17.7	253.1	636.4	746.5	1 505.5	31.6	427.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	14.6	474.5	9.3	19.5	278.9	853.8	778.4	1 652.7	33.3	543.1	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	15.0	472.7	9.6	20.0	276.3	959.8	793.9	1 729.6	39.4	562.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	14.6	458.6	9.4	20.0	269.2	921.2	824.4	1 752.7	36.5	550.4	(NA)	(NA)
1987 Census	196	207	120	13.8	414.3	8.7	18.1	236.7	734.3	637.8	1 396.3	31.2	529.3	91	87
1986 ASM	(NA)	(NA)	(NA)	16.6	440.5	10.7	21.4	257.3	765.7	713.2	1 507.9	33.9	524.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	17.7	461.6	11.5	23.0	275.4	933.2	598.7	1 412.8	43.7	569.3	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	16.1	407.0	10.5	20.7	242.7	775.9	535.4	1 308.7	31.0	424.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	15.3	357.0	9.6	17.8	196.0	629.6	454.9	1 142.3	28.1	431.6	(NA)	(NA)
1982 Census	435	452	162	19.5	438.1	12.1	23.2	245.3	777.8	574.6	1 428.7	43.4	511.5	89	87
1981 ASM	(NA)	(NA)	(NA)	24.0	496.8	16.0	30.8	294.9	976.5	662.7	1 615.7	63.0	479.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	26.9	514.1	18.2	35.2	313.2	1 042.1	718.5	1 753.1	69.4	455.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	27.0	485.6	18.7	37.5	305.1	1 004.0	687.0	1 663.5	58.1	447.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	25.2	415.6	17.0	35.1	253.2	841.3	576.4	1 366.0	40.4	421.7	(NA)	(NA)
1977 Census	411	426	163	23.7	360.7	16.1	32.8	219.4	721.9	444.0	1 130.6	24.7	359.6	90	87
INDUSTRY 3543, INDUSTRIAL PATTERNS															
1992 Census	708	711	87	7.9	258.7	6.5	13.2	199.6	416.3	125.7	539.0	15.1	41.8	95	72
1991 ASM	(NA)	(NA)	(NA)	6.9	223.0	5.6	10.5	168.8	340.5	117.5	461.7	6.0	42.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	8.1	257.3	6.7	13.5	194.2	396.6	133.0	534.3	11.0	57.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	8.9	271.2	7.5	15.0	214.2	436.2	132.6	556.9	15.7	57.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	10.5	315.4	8.4	16.8	250.6	511.6	207.6	719.5	13.0	48.2	(NA)	(NA)
1987 Census	812	813	85	8.6	237.5	6.9	13.8	186.4	389.3	112.5	499.4	18.5	43.0	92	80
1986 ASM	(NA)	(NA)	(NA)	6.9	191.7	5.8	12.3	155.3	384.9	216.8	590.4	14.1	43.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	7.1	188.1	6.0	12.0	152.6	349.0	216.1	549.3	15.6	60.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	7.0	173.7	5.8	11.1	137.0	312.2	186.3	461.1	11.4	45.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	10.2	218.9	8.3	14.9	177.2	311.8	112.2	417.2	14.4	32.9	(NA)	(NA)
1982 Census	994	996	105	9.8	217.6	8.1	14.8	173.4	347.6	97.6	452.3	15.8	29.6	97	76
1981 ASM	(NA)	(NA)	(NA)	9.2	216.6	7.4	13.8	170.0	349.0	103.0	453.3	12.3	37.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	9.6	183.1	7.6	13.5	145.3	310.7	113.8	415.2	(S)	35.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	9.9	184.3	8.5	15.0	145.7	302.3	103.9	399.5	10.8	31.2	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	9.4	167.0	8.0	15.5	130.1	268.6	73.8	335.6	17.1	30.1	(NA)	(NA)
1977 Census	1 001	1 002	115	9.3	152.7	8.0	15.8	122.2	252.5	72.0	320.6	11.1	25.2	97	75
INDUSTRY 3544, SPECIAL DIES, TOOLS, JIGS, AND FIXTURES															
1992 Census	7 227	7 350	1 521	111.4	3 898.3	85.3	188.4	2 744.8	6 644.7	2 690.7	9 309.8	370.1	1 199.1	94	80
1991 ASM	(NA)	(NA)	(NA)	114.0	3 659.1	87.5	190.3	2 585.8	6 281.4	2 615.1	8 890.4	386.0	1 369.2	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	119.8	3 804.8	92.2	200.5	2 718.8	6 525.4	2 952.5	9 487.2	412.8	1 336.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	122.2	3 750.6	94.7	202.7	2 675.5	6 490.6	2 893.7	9 236.3	385.8	1 255.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	115.7	3 357.8	89.7	193.3	2 430.9	5 528.6	2 606.7	8 078.3	272.9	1 010.3	(NA)	(NA)
1987 Census	7 207	7 317	1 517	114.4	3 163.6	87.7	185.5	2 251.2	5 293.8	2 227.0	7 550.1	375.3	952.1	94	82
1986 ASM	(NA)	(NA)	(NA)	108.9	3 000.1	85.7	179.4	2 165.1	5 582.2	2 158.1	7 725.1	333.6	913.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	110.6	2 904.4	88.6	183.3	2 123.1	5 222.2	2 069.9	7 204.8	401.8	861.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	111.2	2 737.8	89.7	188.1	2 021.3	4 681.5	2 010.7	6 614.7	398.8	703.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	97.9	2 294.4	78.2	161.1	1 662.5	3 801.7	1 537.1	5 310.6	192.4	590.5	(NA)	(NA)
1982 Census	7 132	7 255	1 322	102.9	2 293.3	81.7	164.9	1 684.9	3 780.5	1 535.4	5 374.9	232.9	621.8	94	79
1981 ASM	(NA)	(NA)	(NA)	124.2	2 632.4	99.6	209.3	1 905.7	4 423.7	1 884.8	6 264.3	275.9	693.1	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	126.3	2 471.0	101.6	214.3	1 798.7	4 121.0	1 734.3	5 823.9	283.5	646.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	122.1	2 231.2	98.9	214.5	1 641.7	3 810.6	1 607.5	5 336.2	294.4	574.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	112.5	1 946.6	92.7	195.2	1 419.9	3 183.2	1 424.2	4 585.1	228.9	510.2	(NA)	(NA)
1977 Census	7 034	7 153	1 427	105.7	1 708.2	86.4	184.0	1 261.7	2 790.1	1 171.8	3 905.3	177.5	450.3	94	79
INDUSTRY 3545, MACHINE TOOL ACCESSORIES															
1992 Census	1 759	1 866	485	42.7	1 243.9	30.1	62.4	748.5	2 653.6	1 113.9	3 786.3	142.2	785.0	95	92
1991 ASM	(NA)	(NA)	(NA)	51.6	1 387.7	35.9	72.5	835.9	2 974.6	1 336.7	4 359.6	125.3	903.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	55.2	1 445.0	39.6	79.9	890.2	3 072.4	1 425.7	4 550.4	182.8	948.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	54.8	1 404.6	39.8	79.8	876.8	3 168.7	1 316.5	4 409.4	169.6	962.3	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	50.7	1 263.9	36.7	75.2	806.1	2 813.6	1 163.2	3 948.5	102.0	832.8	(NA)	(NA)
1987 Census	1 736	1 881	566	48.5	1 186.8	35.1	71.1	758.4	2 565.6	1 039.6	3 601.0	113.3	813.4	94	92
1986 ASM	(NA)	(NA)	(NA)	47.0	1 113.0	34.0	68.3	720.3	2 423.7	1 002.7	3 452.3	108.5	776.2	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	49.4	1 099.5	36.4	73.2	718.0	2 429.2	1 025.8	3 458.8	167.9	813.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	49.5	1 087.9	36.2	72.8	711.2	2 432.7	996.4	3 426.3	168.8	828.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	47.3	958.6	32.7	62.7	607.2	1 821.9	800.1	2 675.7	105.1	784.1	(NA)	(NA)
1982 Census	1 444	1 620	562	55.1	1 069.7	38.8	73.5	690.4	2 164.3	980.3	3 165.3	143.9	906.5	92	89
1981 ASM	(NA)	(NA)	(NA)	62.2	1 198.5	45.8	91.1	782.0	2 701.5	1 407.9	4 062.4	194.7	849.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	61.5	1 090.9	45.5	90.7	717.3	2 529.1	1 306.5	3 728.3	140.3	782.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	60.7	991.1	45.9	93.8	664.6	2 278.9	1 193.1	3 376.1	121.4	672.1	(NA)	(NA)

See footnotes at end of table.

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Table 1a. **Historical Statistics for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[7] (percent)	Ratios Coverage[8] (percent)
INDUSTRY 3545, MACHINE TOOL ACCESSORIES—Con.															
1978 ASM	(NA)	(NA)	(NA)	58.2	892.3	43.7	88.5	603.1	1 969.8	979.1	2 876.1	97.3	564.5	(NA)	(NA)
1977 Census	1 270	1 411	491	54.0	762.0	39.9	80.1	498.0	1 584.8	832.5	2 383.0	77.2	468.3	89	88
INDUSTRY 3546, POWER-DRIVEN HANDTOOLS															
1992 Census	214	226	69	16.1	440.6	10.6	21.7	240.5	1 506.8	1 359.9	2 872.5	72.3	377.6	85	87
1991 ASM	(NA)	(NA)	(NA)	17.5	429.1	11.4	21.5	233.4	1 310.9	1 276.7	2 580.7	74.7	407.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	18.3	446.9	12.6	24.4	248.3	1 471.8	1 344.1	2 805.8	98.4	424.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	17.5	413.5	12.3	23.3	233.8	1 299.0	1 303.6	2 617.5	66.2	376.0	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	17.1	391.2	12.0	23.3	225.8	1 275.7	1 241.0	2 505.0	59.0	388.0	(NA)	(NA)
1987 Census	183	199	68	16.8	382.8	11.7	22.3	222.3	1 125.0	1 045.9	2 161.8	46.2	361.2	83	85
1986 ASM	(NA)	(NA)	(NA)	17.9	383.8	12.5	24.0	229.3	1 121.5	998.3	2 142.4	72.1	362.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	19.2	398.4	13.2	23.9	240.1	1 141.3	996.2	2 155.1	80.3	388.9	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	20.0	392.2	14.2	26.4	245.1	1 088.8	965.9	2 016.3	50.6	423.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	19.5	385.1	13.3	24.9	223.2	1 015.9	788.7	1 801.9	45.4	398.8	(NA)	(NA)
1982 Census	180	203	74	21.6	393.6	14.5	25.9	228.6	940.3	791.5	1 795.3	68.1	415.0	88	91
1981 ASM	(NA)	(NA)	(NA)	26.0	434.2	18.5	35.7	279.4	1 264.1	931.5	2 144.7	79.3	489.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	30.5	440.0	22.5	41.5	289.9	1 294.6	1 002.1	2 298.8	82.9	448.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	32.3	446.8	24.0	45.9	301.2	1 205.2	1 015.9	2 197.2	85.1	446.1	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	29.8	377.5	21.9	41.8	244.1	1 069.2	870.9	1 929.1	49.9	352.9	(NA)	(NA)
1977 Census	99	124	71	27.7	325.7	20.0	38.5	210.4	931.9	703.2	1 623.2	39.0	326.0	91	90
INDUSTRY 3547, ROLLING MILL MACHINERY															
1992 Census	87	89	40	5.4	186.8	3.0	6.3	85.2	313.2	288.6	602.8	13.7	170.7	94	95
1991 ASM	(NA)	(NA)	(NA)	3.9	138.1	2.3	4.9	65.4	260.6	228.5	486.8	11.5	85.7	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	3.8	130.1	2.2	4.7	61.7	173.3	226.8	483.4	9.9	213.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	4.0	130.6	2.4	5.2	64.1	368.8	362.8	605.2	5.8	327.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	3.8	121.6	2.2	4.9	59.3	246.2	335.3	561.4	5.2	198.1	(NA)	(NA)
1987 Census	83	86	34	3.9	120.7	2.2	4.7	57.4	284.9	249.7	467.8	7.1	170.6	92	94
1986 ASM	(NA)	(NA)	(NA)	3.5	101.1	1.9	3.8	46.9	169.6	209.7	380.8	3.6	94.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	3.9	106.7	2.2	4.4	53.8	196.7	213.0	453.7	9.2	85.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	3.3	89.3	2.0	3.8	45.5	192.8	168.5	323.1	6.0	128.4	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	4.1	94.1	2.5	4.5	51.5	114.2	182.0	373.6	5.3	109.7	(NA)	(NA)
1982 Census	58	63	32	5.1	125.1	3.3	6.1	70.8	276.4	246.8	502.9	14.8	168.1	79	79
1981 ASM	(NA)	(NA)	(NA)	6.0	135.1	3.9	7.6	81.9	410.4	341.4	736.3	8.3	161.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	6.4	139.4	4.5	8.6	87.3	358.1	314.3	687.1	12.8	132.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	6.1	119.3	4.2	8.7	76.9	296.1	232.3	481.9	30.9	154.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	7.6	137.6	5.3	9.3	83.6	289.7	189.3	495.2	7.6	118.8	(NA)	(NA)
1977 Census	58	63	38	7.9	128.2	5.4	10.4	78.4	286.9	198.3	507.4	9.1	131.8	78	86
INDUSTRY 3548, WELDING APPARATUS															
1992 Census	215	240	130	19.8	670.3	11.9	24.7	342.7	1 499.9	1 250.3	2 763.5	65.8	595.5	90	96
1991 ASM	(NA)	(NA)	(NA)	19.5	620.8	11.8	24.5	320.3	1 344.1	1 295.1	2 651.2	50.5	685.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	19.2	610.4	12.0	24.4	320.9	1 457.0	1 264.5	2 683.6	67.7	608.5	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	19.0	578.0	11.6	24.3	307.9	1 274.9	1 223.4	2 520.5	59.1	532.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	19.7	601.5	12.3	25.8	321.3	1 314.9	1 236.0	2 497.8	49.3	630.1	(NA)	(NA)
1987 Census	203	225	130	18.7	541.5	11.5	24.2	292.9	1 084.4	1 062.1	2 104.6	45.4	556.4	90	92
INDUSTRY 3549, METALWORKING MACHINERY, N.E.C.															
1992 Census	389	400	167	13.2	487.5	7.9	17.6	247.2	942.7	687.6	1 618.3	27.6	339.7	87	89
1991 ASM	(NA)	(NA)	(NA)	10.9	358.9	6.5	14.8	183.7	702.0	505.1	1 150.8	32.5	277.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	11.7	384.4	6.7	15.5	192.9	675.1	584.7	1 231.1	19.6	266.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	12.7	393.9	7.6	16.8	204.8	756.6	664.2	1 385.3	29.3	307.8	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	12.0	370.6	7.3	15.6	193.1	673.1	507.8	1 164.5	26.8	310.1	(NA)	(NA)
1987 Census	292	301	146	11.3	332.1	6.9	14.4	177.4	588.4	438.2	1 033.0	20.9	260.4	89	87

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1977, see 1977 Census of Manufactures, vol. II, table 1 of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during the year.

[4]Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years when respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, 1982 data for inventories and value added by manufacture are not comparable to prior-year data.

[5]Cost of materials is the sum of five components: the cost of (1) parts used in the manufacture of finished goods (materials, parts, containers, and supplies incorporated into products or otherwise directly consumed in the process); (2) purchased items later resold without further manufacture; (3) fuels; (4) electricity; and (5) commissions or fees to outside parties for contract manufacturing. A separate cost for each of the five components is shown in table 3a. Detailed data on materials consumed by type, are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

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Table 1b. Selected Operating Ratios for the Industry: 1992 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 3541, MACHINE TOOLS, METAL CUTTING TYPES									
1992 Census	36 370	56	2 118	15.48	49	77	68 181	53	57.17
1991 ASM	33 282	59	2 103	14.51	48	76	59 429	56	47.95
1990 ASM	33 076	60	2 077	14.13	47	74	62 386	53	50.01
1989 ASM	31 984	59	2 054	14.06	45	72	68 152	47	55.89
1988 ASM	31 445	59	2 023	13.52	45	75	61 140	51	51.06
1987 Census	29 069	57	1 945	13.16	44	73	52 640	55	47.14
1986 ASM	28 207	57	1 982	12.78	45	76	47 249	60	41.83
1985 ASM	26 346	58	1 916	12.42	44	77	46 729	56	41.93
1984 ASM	24 856	58	1 883	11.65	43	75	42 925	58	39.14
1983 ASM	23 188	57	1 873	11.16	38	73	37 505	62	35.14
1982 Census	22 899	58	1 876	11.15	36	66	43 160	53	39.56
1981 ASM	21 978	64	2 056	9.79	37	65	50 335	44	37.97
1980 ASM	20 659	66	2 067	9.00	39	68	46 005	45	33.90
1979 ASM	18 873	66	2 098	8.21	40	69	41 010	46	29.55
1978 ASM	17 429	66	2 090	7.71	39	70	35 257	49	25.70
1977 Census	15 976	63	2 051	7.09	37	71	31 416	51	24.46
INDUSTRY 3542, MACHINE TOOLS, METAL FORMING TYPES									
1992 Census	34 230	64	2 026	14.99	48	77	59 721	57	46.11
1991 ASM	32 852	63	2 082	14.30	50	79	47 141	70	35.95
1990 ASM	32 500	64	2 097	14.30	47	76	58 479	56	43.78
1989 ASM	31 513	64	2 083	13.82	46	73	63 987	49	47.99
1988 ASM	31 411	64	2 128	13.46	47	73	63 096	50	46.06
1987 Census	30 022	63	2 080	13.08	46	75	53 210	56	40.57
1986 ASM	26 536	64	2 000	12.02	47	77	46 127	58	35.78
1985 ASM	26 079	65	2 000	11.97	42	75	52 723	49	40.57
1984 ASM	25 280	65	1 971	11.72	41	72	48 193	52	37.48
1983 ASM	23 333	63	1 854	11.01	40	71	41 150	57	35.37
1982 Census	22 467	62	1 917	10.57	40	71	39 887	56	33.53
1981 ASM	20 700	67	1 925	9.57	41	72	40 688	51	31.70
1980 ASM	19 112	68	1 934	8.90	41	70	38 740	49	29.61
1979 ASM	17 985	69	2 005	8.14	41	70	37 185	48	26.77
1978 ASM	16 492	67	2 065	7.21	42	73	33 385	49	23.97
1977 Census	15 219	68	2 037	6.69	39	71	30 460	50	22.01
INDUSTRY 3543, INDUSTRIAL PATTERNS									
1992 Census	32 747	82	2 031	15.12	23	71	52 696	62	31.54
1991 ASM	32 319	81	1 875	16.08	25	74	49 348	65	32.43
1990 ASM	31 765	83	2 015	14.39	25	73	48 963	65	29.38
1989 ASM	30 472	84	2 000	14.28	24	73	49 011	62	29.08
1988 ASM	30 038	80	2 000	14.92	29	73	48 724	62	30.45
1987 Census	27 616	80	2 000	13.51	23	70	45 267	61	28.21
1986 ASM	27 783	84	2 121	12.63	37	69	55 783	50	31.29
1985 ASM	26 493	85	2 000	12.72	39	74	49 155	54	29.08
1984 ASM	24 814	83	1 914	12.34	40	78	44 600	56	28.13
1983 ASM	21 461	81	1 795	11.89	27	79	30 569	70	20.93
1982 Census	22 204	83	1 827	11.72	22	70	35 469	63	23.49
1981 ASM	23 543	80	1 865	12.32	23	71	37 935	62	25.29
1980 ASM	19 073	79	1 776	10.76	27	72	32 365	59	23.01
1979 ASM	18 616	86	1 765	9.71	26	72	30 535	61	20.15
1978 ASM	17 766	85	1 938	8.39	22	72	28 574	62	17.33
1977 Census	16 419	86	1 975	7.73	22	70	27 151	60	15.98
INDUSTRY 3544, SPECIAL DIES, TOOLS, JIGS, AND FIXTURES									
1992 Census	34 994	77	2 209	14.57	29	71	59 647	59	35.27
1991 ASM	32 097	77	2 175	13.59	29	71	55 100	58	33.01
1990 ASM	31 760	77	2 175	13.56	31	71	54 469	58	32.55
1989 ASM	30 692	77	2 140	13.20	31	72	53 115	58	32.02
1988 ASM	29 022	78	2 155	12.58	32	74	47 784	61	28.60
1987 Census	27 654	77	2 115	12.14	29	71	46 274	60	28.54
1986 ASM	27 549	79	2 093	12.07	28	67	51 260	54	31.12
1985 ASM	26 260	80	2 069	11.58	29	69	47 217	56	28.49
1984 ASM	24 621	81	2 097	10.75	30	72	42 100	58	24.89
1983 ASM	23 436	80	2 060	10.32	29	72	38 832	60	23.60
1982 Census	22 287	79	2 018	10.22	29	71	36 740	61	22.93
1981 ASM	21 195	80	2 101	9.11	30	72	35 618	60	21.14
1980 ASM	19 565	80	2 109	8.39	30	72	32 629	60	19.23
1979 ASM	18 274	81	2 169	7.65	30	72	31 209	59	17.77
1978 ASM	17 303	82	2 106	7.27	31	74	28 295	61	16.31
1977 Census	16 161	82	2 130	6.86	30	74	26 396	61	15.16
INDUSTRY 3545, MACHINE TOOL ACCESSORIES									
1992 Census	29 131	70	2 073	12.00	29	62	62 145	47	42.53
1991 ASM	26 893	70	2 019	11.53	31	62	57 647	47	41.03
1990 ASM	26 178	72	2 018	11.14	31	63	55 659	47	38.45
1989 ASM	25 631	73	2 005	10.99	30	62	57 823	44	39.71
1988 ASM	24 929	72	2 049	10.72	29	61	55 495	45	37.41
1987 Census	24 470	72	2 026	10.67	29	62	52 899	46	36.08
1986 ASM	23 681	72	2 009	10.55	29	61	51 568	46	35.49
1985 ASM	22 257	74	2 011	9.81	30	61	49 174	45	33.19
1984 ASM	21 978	73	2 011	9.77	29	61	49 145	45	33.42
1983 ASM	20 266	69	1 917	9.68	30	66	38 518	53	29.06
1982 Census	19 414	70	1 894	9.39	31	65	39 279	49	29.45
1981 ASM	19 268	74	1 989	8.58	35	64	43 432	44	29.65
1980 ASM	17 738	74	1 993	7.91	35	64	41 124	43	27.88
1979 ASM	16 328	76	2 044	7.09	35	65	37 544	43	24.30
1978 ASM	15 332	75	2 025	6.81	34	65	33 845	45	22.26
1977 Census	14 111	74	2 008	6.22	35	67	29 348	48	19.79

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Table 1b. **Selected Operating Ratios for the Industry: 1992 and Earlier Years**—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
	INDUSTRY 3546, POWER-DRIVEN HANDTOOLS								
1992 Census	27 366	66	2 047	11.08	47	63	93 590	29	69.44
1991 ASM	24 520	65	1 886	10.86	49	66	74 909	33	60.97
1990 ASM	24 421	69	1 937	10.18	48	64	80 426	30	60.32
1989 ASM	23 629	70	1 894	10.03	50	66	74 229	32	55.75
1988 ASM	22 877	70	1 942	9.69	50	65	74 602	31	54.75
1987 Census	22 786	70	1 906	9.97	48	66	66 964	34	50.45
1986 ASM	21 441	70	1 920	9.55	47	65	62 654	34	46.73
1985 ASM	20 750	69	1 811	10.05	46	65	59 443	35	47.75
1984 ASM	19 610	71	1 859	9.28	48	67	54 440	36	41.24
1983 ASM	19 749	68	1 872	8.96	44	65	52 097	38	40.80
1982 Census	18 222	67	1 786	8.83	44	66	43 532	42	36.31
1981 ASM	16 700	71	1 930	7.83	43	64	48 619	34	35.41
1980 ASM	14 426	74	1 844	6.99	44	63	42 446	34	31.20
1979 ASM	13 833	74	1 913	6.56	46	67	37 313	37	26.26
1978 ASM	12 668	73	1 909	5.84	45	65	35 879	35	25.58
1977 Census	11 758	72	1 925	5.46	43	63	33 643	35	24.21
	INDUSTRY 3547, ROLLING MILL MACHINERY								
1992 Census	34 593	56	2 100	13.52	48	79	58 000	60	49.71
1991 ASM	35 410	59	2 130	13.35	47	75	66 821	53	53.18
1990 ASM	34 237	58	2 136	13.13	47	74	45 605	75	36.87
1989 ASM	32 650	60	2 167	12.33	60	82	92 200	35	70.92
1988 ASM	32 000	58	2 227	12.10	60	81	64 789	49	50.24
1987 Census	30 949	56	2 136	12.21	53	79	73 051	42	60.62
1986 ASM	28 886	54	2 000	12.34	55	82	48 457	60	44.63
1985 ASM	27 359	56	2 000	12.23	47	70	50 436	54	44.70
1984 ASM	27 061	61	1 900	11.97	52	80	58 424	46	50.74
1983 ASM	22 951	61	1 800	11.44	49	74	27 854	82	25.38
1982 Census	24 529	65	1 848	11.61	49	74	54 196	45	45.31
1981 ASM	22 517	65	1 949	10.78	46	65	68 400	33	54.00
1980 ASM	21 781	70	1 911	10.15	46	66	55 953	39	41.64
1979 ASM	19 557	69	2 071	8.84	48	73	48 541	40	34.03
1978 ASM	18 105	70	1 755	8.99	38	66	38 118	47	31.15
1977 Census	16 228	68	1 926	7.54	39	64	36 316	45	27.59
	INDUSTRY 3548, WELDING APPARATUS								
1992 Census	33 854	60	2 076	13.87	45	69	75 753	45	60.72
1991 ASM	31 836	61	2 076	13.07	49	72	68 928	46	54.86
1990 ASM	31 792	63	2 033	13.15	47	70	75 885	42	59.71
1989 ASM	30 421	61	2 095	12.67	49	71	67 100	45	52.47
1988 ASM	30 533	62	2 098	12.45	49	74	66 746	46	50.97
1987 Census	28 957	61	2 104	12.10	50	76	57 989	50	44.81
	INDUSTRY 3549, METALWORKING MACHINERY, N.E.C.								
1992 Census	36 932	60	2 228	14.05	42	73	71 417	52	53.56
1991 ASM	32 927	60	2 277	12.41	44	75	64 404	51	47.43
1990 ASM	32 855	57	2 313	12.45	47	79	57 701	57	43.55
1989 ASM	31 016	60	2 211	12.19	48	76	59 575	52	45.04
1988 ASM	30 883	61	2 137	12.38	44	75	56 092	55	43.15
1987 Census	29 389	61	2 087	12.32	42	75	52 071	56	40.86

Note: For qualifications of data, see footnotes on table 1a.

Table 2. **Industry Statistics for Selected States: 1992 and 1987**

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992													1987	
		All establishments		All employees		Production workers									
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3541, MACHINE TOOLS, METAL CUTTING TYPES														
United States	**–**	**422**	**220**	**27.0**	**982.1**	**15.2**	**32.2**	**498.5**	**1 840.9**	**1 762.0**	**3 567.8**	**82.4**	**31.7**	**1 668.7**
California	–	32	9	.8	36.5	.4	1.1	17.5	82.3	65.4	147.7	2.9	.7	38.7
Connecticut	E1	25	9	1.5	49.8	.9	1.7	24.4	57.4	63.2	126.1	1.5	2.2	96.3
Illinois	–	41	18	3.1	116.1	1.6	3.9	60.5	119.3	298.5	423.8	10.3	3.4	202.2
Indiana	–	8	6	.5	18.5	.3	.5	11.7	20.7	30.2	50.9	(D)	.7	25.3
Iowa	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3541, MACHINE TOOLS, METAL CUTTING TYPES—Con.														
Kansas	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Kentucky	–	6	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	–	18	4	.6	18.5	.2	.6	7.1	4.1	27.8	58.6	.6	1.2	61.4
Michigan	–	100	59	4.6	187.5	2.8	6.5	107.8	436.1	367.5	769.5	11.2	4.5	299.8
Minnesota	–	11	5	.6	18.2	.4	.7	9.1	26.5	31.6	63.9	2.1	.9	46.3
New Hampshire	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
New Jersey	–	9	4	.2	7.7	.1	.3	4.1	11.4	6.3	18.1	(D)	.4	20.7
New York	–	18	10	2.6	96.2	1.5	3.1	50.0	144.7	115.9	266.5	(D)	3.2	162.6
North Carolina	–	4	3	.2	8.4	.2	.3	4.6	14.3	47.4	60.5	(D)	(NA)	(D)
Ohio	–	36	24	4.6	175.5	2.4	4.6	76.7	342.8	293.7	659.5	10.0	5.9	298.4
Oklahoma	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Oregon	–	7	3	.2	6.4	.1	.2	2.4	10.1	9.5	19.0	.4	.2	9.1
Pennsylvania	–	20	10	.8	26.6	.4	.9	12.9	55.6	48.9	96.6	3.4	1.1	52.7
Rhode Island	–	3	3	.1	4.2	.1	.2	2.5	6.7	8.6	15.7	(D)	F	(D)
South Carolina	–	5	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
South Dakota	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Vermont	–	4	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	35.4
Virginia	–	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Wisconsin	–	28	20	2.6	93.0	1.4	2.8	41.2	226.4	113.9	326.4	3.7	2.2	143.5
INDUSTRY 3542, MACHINE TOOLS, METAL FORMING TYPES														
United States	**–**	**217**	**114**	**12.2**	**417.6**	**7.8**	**15.8**	**236.9**	**728.6**	**700.1**	**1 450.9**	**40.4**	**13.8**	**734.3**
Alabama	–	4	2	.1	3.8	.1	.2	2.7	7.1	4.1	11.0	(D)	(NA)	(NA)
California	–	21	12	.8	27.4	.5	.9	13.2	56.4	54.2	113.1	2.3	.8	43.6
Colorado	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Connecticut	E6	7	3	.4	15.2	.2	.5	8.0	27.6	19.7	46.5	(D)	.3	16.9
Georgia	–	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	(NA)	(NA)
Illinois	–	32	24	2.7	97.9	1.7	3.3	58.2	138.8	209.0	341.0	7.3	3.6	137.7
Indiana	–	8	2	.2	4.9	.1	.3	3.1	8.3	5.1	13.3	.4	.3	16.7
Kansas	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	–	4	3	.1	4.6	.1	.2	3.2	11.5	4.5	15.4	.4	(NA)	(D)
Michigan	–	27	15	1.3	50.3	1.0	2.3	33.7	100.1	70.8	173.3	5.4	1.8	108.4
Missouri	–	6	1	.1	4.1	.1	.2	2.6	7.5	5.3	12.9	.1	.2	6.3
New York	–	10	5	1.1	37.7	.6	1.2	18.3	63.9	54.1	117.6	(D)	1.1	70.6
North Carolina	–	6	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Ohio	–	31	16	3.0	96.4	1.8	3.6	51.7	165.6	153.5	345.8	9.6	2.9	193.3
Pennsylvania	–	8	6	.5	14.5	.3	.6	9.1	17.3	27.8	45.6	1.1	.5	13.7
South Dakota	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	E2	4	2	.1	2.9	.1	.2	1.8	4.3	4.1	8.9	(D)	(NA)	(NA)
Virginia	E4	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	–	6	3	.1	4.8	.1	.2	2.6	7.3	6.3	13.5	.1	(NA)	(NA)
INDUSTRY 3543, INDUSTRIAL PATTERNS														
United States	**E1**	**711**	**87**	**7.9**	**258.7**	**6.5**	**13.2**	**199.6**	**416.3**	**125.7**	**539.0**	**15.1**	**8.6**	**389.3**
Alabama	–	21	2	.2	5.5	.2	.3	4.5	10.5	6.9	17.4	.4	.2	10.4
California	E2	45	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Illinois	E1	51	4	.4	13.8	.4	.8	11.2	23.2	5.8	29.0	.5	E	(D)
Indiana	E1	29	8	.5	14.8	.4	.8	11.5	23.0	6.9	30.4	.9	.4	17.6
Iowa	–	13	3	.2	6.3	.1	.3	5.1	11.2	3.4	14.6	1.0	(NA)	(NA)
Kansas	–	13	2	.2	4.2	.1	.3	3.1	6.9	2.2	9.1	.1	(NA)	(NA)
Massachusetts	E2	18	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(NA)
Michigan	E1	94	25	1.7	71.7	1.4	2.8	55.0	117.2	29.5	146.4	3.4	1.9	109.6
Minnesota	–	16	2	.2	6.5	.1	.3	4.9	10.1	2.4	12.6	.4	.2	(D)
Missouri	E1	15	2	.1	4.2	.1	.2	3.1	7.2	2.4	9.7	.5	.2	7.4
New York	E4	28	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	E	(D)
Ohio	–	94	8	1.1	34.0	.9	1.9	26.2	51.5	16.8	68.1	1.4	1.2	56.9
Pennsylvania	E1	57	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Tennessee	–	7	4	.5	10.6	.5	.8	8.2	15.4	9.0	24.4	.6	F	(D)
Texas	E4	28	1	.2	5.4	.1	.3	3.7	5.9	2.9	9.0	.2	(NA)	(D)
Washington	E1	10	1	.1	3.0	.1	.2	2.2	5.0	1.3	6.4	.1	(NA)	(NA)
Wisconsin	–	59	12	.8	30.5	.7	1.5	23.7	47.8	10.8	55.4	2.7	.9	45.8

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3544, SPECIAL DIES, TOOLS, JIGS, AND FIXTURES														
United States	**E1**	**7 350**	**1 521**	**111.4**	**3 898.3**	**85.3**	**188.4**	**2 744.8**	**6 644.7**	**2 690.7**	**9 309.8**	**370.1**	**114.4**	**5 293.8**
Alabama	–	54	17	1.2	30.8	1.0	2.0	23.2	56.3	28.4	85.5	2.9	1.0	34.1
Arizona	E1	86	10	.8	25.6	.6	1.3	17.9	40.4	18.8	57.5	3.1	.8	29.1
Arkansas	E2	69	9	.6	16.1	.5	1.0	11.1	28.4	12.1	40.5	1.6	.5	18.3
California	E1	576	74	5.7	197.6	4.3	9.7	132.1	355.8	150.1	502.3	18.0	7.5	353.2
Colorado	E1	55	6	.5	15.2	.4	.8	10.6	25.6	10.5	35.9	1.1	.5	18.8
Connecticut	–	251	36	2.5	97.3	1.9	4.2	65.2	151.4	62.9	215.0	7.6	3.0	134.8
Florida	E2	177	21	1.6	46.3	1.2	2.5	31.7	80.9	35.2	116.2	3.9	1.5	61.5
Georgia	E1	63	13	.8	22.9	.6	1.2	16.1	41.0	19.2	59.8	3.4	1.0	34.4
Illinois	E1	691	133	10.3	391.4	7.6	17.4	268.1	628.1	275.8	904.0	38.2	10.5	505.2
Indiana	E1	407	94	6.4	201.2	5.0	10.6	144.2	341.4	126.2	468.2	18.7	6.7	300.3
Iowa	–	63	16	1.0	31.7	.8	1.7	23.8	54.0	20.4	74.3	3.0	F	(D)
Kansas	–	32	8	.4	11.7	.3	.7	8.6	20.8	7.1	27.7	.9	E	(D)
Kentucky	–	82	19	1.0	27.4	.8	1.7	20.7	43.2	16.8	59.6	4.5	F	(D)
Maryland	E2	24	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	(NA)	(D)
Massachusetts	E2	199	30	2.2	78.0	1.7	3.7	54.5	128.0	48.9	177.2	7.0	2.9	119.6
Michigan	–	1 210	371	26.8	1 084.7	20.5	48.0	764.6	1 875.4	708.9	2 564.0	95.4	27.6	1 480.9
Minnesota	–	184	36	2.8	97.9	2.0	4.4	65.7	175.8	65.0	241.2	13.9	G	(D)
Mississippi	E1	39	4	.3	6.8	.2	.5	4.9	13.1	8.2	21.4	.7	E	(D)
Missouri	–	148	30	2.1	70.7	1.7	3.5	49.6	127.3	62.4	186.6	10.3	2.2	92.9
Nebraska	E4	19	4	.2	4.3	.2	.3	3.1	7.9	2.8	10.7	.6	(NA)	(NA)
New Hampshire	E1	33	5	.3	9.1	.2	.5	6.8	15.0	4.2	19.5	.9	E	(D)
New Jersey	E1	249	41	2.8	97.1	2.2	4.8	66.7	164.7	66.9	231.8	6.3	4.0	178.5
New York	E2	338	57	4.0	122.2	3.1	6.6	85.4	201.2	86.0	288.2	11.4	4.8	147.5
North Carolina	–	107	14	1.3	37.3	1.0	2.0	26.2	70.0	24.5	94.7	4.3	G	(D)
Ohio	–	772	200	15.3	514.4	12.0	26.4	370.9	900.5	345.2	1 239.1	47.6	14.7	692.4
Oklahoma	E1	28	1	.2	5.2	.2	.3	3.5	10.1	5.3	15.3	.4	(NA)	(D)
Oregon	E1	60	3	.4	12.5	.3	.6	9.4	19.6	9.0	28.5	.6	.3	11.6
Pennsylvania	E1	418	116	8.5	280.0	6.7	14.0	199.3	476.1	227.6	705.7	26.9	8.5	383.4
Rhode Island	E1	57	5	.4	13.1	.3	.7	9.1	22.5	6.9	29.8	1.0	E	(D)
South Carolina	E1	46	13	.6	16.9	.4	1.0	11.5	29.7	12.7	42.9	1.4	.6	22.9
Tennessee	E1	148	27	1.7	49.4	1.3	2.7	33.3	74.9	33.0	110.3	3.9	1.5	55.3
Texas	E2	198	20	1.8	47.4	1.4	2.8	34.2	78.7	31.7	109.8	4.4	1.5	57.3
Utah	E3	17	1	.1	2.4	.1	.2	1.7	3.9	1.4	5.3	.1	(NA)	(NA)
Vermont	E1	7	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	–	32	7	.6	16.9	.4	.8	12.2	26.4	11.3	36.8	.8	E	(D)
Washington	E1	46	5	.5	13.8	.3	.7	9.8	20.5	8.6	28.1	1.1	.3	14.6
Wisconsin	–	315	67	5.1	185.7	4.0	8.5	137.2	305.2	122.7	431.4	22.8	4.8	226.7
INDUSTRY 3545, MACHINE TOOL ACCESSORIES														
United States	**–**	**1 866**	**485**	**42.7**	**1 243.9**	**30.1**	**62.4**	**748.5**	**2 653.6**	**1 113.9**	**3 786.3**	**142.2**	**48.5**	**2 565.6**
Alabama	–	5	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	24.3
Arizona	E3	23	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	(NA)	(D)
Arkansas	–	12	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
California	E1	192	36	2.5	67.7	1.9	4.0	42.6	132.2	59.6	191.8	6.4	2.6	113.3
Connecticut	–	93	18	1.5	44.3	1.0	2.1	26.3	77.4	38.9	118.5	2.2	1.9	88.4
Florida	E3	41	10	.6	14.4	.5	.9	9.3	32.6	12.6	45.1	1.5	.6	24.7
Georgia	–	20	2	.7	21.2	.5	1.1	9.5	37.0	14.7	49.3	(D)	F	(D)
Illinois	–	151	41	4.9	141.6	3.4	7.2	83.1	265.3	138.5	406.7	21.8	3.8	181.6
Indiana	E1	45	13	.9	22.5	.7	1.5	14.9	49.0	16.4	65.2	2.0	1.2	54.2
Iowa	–	17	5	.4	11.5	.3	.6	7.0	25.2	8.3	33.4	.6	E	(D)
Kentucky	E1	11	4	.2	4.9	.1	.3	3.1	9.6	6.2	15.9	1.2	E	(D)
Maine	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	–	67	24	2.6	76.9	1.8	3.6	47.4	165.6	65.5	232.1	7.7	3.7	165.1
Michigan	–	408	127	8.3	262.2	5.7	11.9	156.4	526.5	211.5	751.2	27.3	9.3	534.3
Minnesota	–	33	5	.6	16.2	.4	.7	7.8	43.7	24.1	65.4	.8	F	(D)
Mississippi	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	–	19	5	.4	9.1	.2	.5	5.0	19.2	12.7	32.6	.6	.5	23.3
New Hampshire	–	17	5	.2	6.0	.1	.3	3.3	15.0	7.3	22.4	.8	E	(D)
New Jersey	–	54	9	.5	16.6	.3	.7	9.1	36.4	15.0	51.6	2.0	1.2	68.4
New York	E1	100	23	1.5	45.5	1.0	2.0	25.6	85.9	37.1	123.9	6.4	2.2	104.0
North Carolina	–	25	8	.9	23.1	.6	1.4	15.1	71.9	20.0	91.2	6.6	F	(D)
Ohio	–	170	54	4.9	152.0	3.4	7.1	88.5	390.7	120.9	515.3	17.1	6.7	399.6
Pennsylvania	–	79	15	2.2	63.9	1.5	3.1	38.3	115.8	57.0	171.1	8.7	2.8	135.0
Rhode Island	–	20	6	.8	26.6	.5	1.2	15.7	49.8	16.9	69.0	1.6	1.2	63.3
South Carolina	–	34	18	1.8	45.8	1.3	2.8	28.6	133.3	62.3	193.4	7.9	1.5	101.5
Tennessee	–	24	9	1.1	34.7	.8	1.6	21.7	85.1	31.8	118.6	5.0	F	(D)
Texas	–	50	13	.9	22.9	.7	1.3	15.4	51.6	18.5	69.2	2.5	.6	33.1
Vermont	–	14	6	.7	16.5	.5	1.0	11.2	27.8	10.2	38.3	.9	.7	33.8
Virginia	E1	10	1	.2	4.9	.1	.3	3.5	6.7	3.1	9.8	(D)	(NA)	(D)
Wisconsin	E1	45	11	1.5	40.5	1.2	2.3	29.6	84.6	48.6	133.3	2.6	1.5	81.0

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3546, POWER-DRIVEN HANDTOOLS														
United States	**–**	**226**	**69**	**16.1**	**440.6**	**10.6**	**21.7**	**240.5**	**1 506.8**	**1 359.9**	**2 872.5**	**72.3**	**16.8**	**1 125.0**
Arizona	–	4	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Arkansas	–	4	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
California	E4	28	4	.3	9.0	.2	.4	4.6	19.5	13.1	32.1	1.0	E	(D)
Connecticut	E4	12	1	.2	4.7	.1	.2	2.6	8.1	8.3	16.3	.6	(NA)	(NA)
Illinois	E2	22	5	.4	13.1	.3	.6	7.6	25.8	15.3	40.6	1.1	.3	8.4
Indiana	–	3	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Iowa	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Maryland	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	E6	10	2	.3	5.8	.2	.3	3.0	15.6	15.2	31.0	.8	(NA)	(D)
Michigan	E4	15	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	(NA)	(NA)
Mississippi	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New York	–	12	6	1.0	36.1	.5	.9	15.0	70.9	61.0	136.9	3.8	1.0	70.4
North Carolina	–	7	5	H	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Ohio	–	22	9	1.5	55.8	.9	1.6	26.7	113.5	53.6	165.7	6.1	1.6	92.4
Oregon	–	6	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Pennsylvania	–	12	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
South Carolina	–	4	4	2.0	53.6	1.5	3.1	32.8	124.6	119.8	234.3	2.9	2.1	107.2
Tennessee	–	5	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Texas	–	10	2	.5	13.6	.2	.4	7.9	37.2	12.3	50.5	.4	E	(D)
Virginia	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Wisconsin	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
INDUSTRY 3547, ROLLING MILL MACHINERY														
United States	**E2**	**89**	**40**	**5.4**	**186.8**	**3.0**	**6.3**	**85.2**	**313.2**	**288.6**	**602.8**	**13.7**	**3.9**	**284.9**
California	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Connecticut	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	–	8	4	.2	7.1	.1	.2	3.4	11.7	10.0	21.3	.2	(NA)	(D)
Indiana	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Massachusetts	E6	6	3	2.0	59.4	1.0	2.2	23.7	102.3	101.5	203.5	(D)	F	(D)
Michigan	–	7	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	(NA)	(NA)
Ohio	–	16	12	1.3	48.0	.7	1.4	21.7	85.5	77.2	161.7	3.0	1.2	72.9
Pennsylvania	–	10	4	.7	27.1	.3	.6	9.1	37.0	46.0	87.1	1.2	.8	109.6
Wisconsin	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(NA)
INDUSTRY 3548, WELDING APPARATUS														
United States	**–**	**240**	**130**	**19.8**	**670.3**	**11.9**	**24.7**	**342.7**	**1 499.9**	**1 250.3**	**2 763.5**	**65.8**	**18.7**	**1 084.4**
California	E1	28	14	1.0	31.4	.6	1.1	13.5	70.9	49.2	120.0	3.2	1.0	64.6
Colorado	E9	6	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Connecticut	–	5	3	.2	7.6	.1	.2	2.6	15.9	10.5	27.1	(D)	(NA)	(NA)
Florida	–	8	4	.5	9.9	.4	.8	5.7	20.5	12.5	33.3	.4	E	(D)
Georgia	E1	4	2	.2	5.8	.1	.2	2.6	5.2	17.2	22.5	(D)	(NA)	(D)
Illinois	–	12	7	.5	17.9	.3	.6	8.5	32.6	22.1	54.7	.7	F	(D)
Indiana	–	5	3	.3	9.9	.2	.3	3.9	18.9	8.1	25.3	.8	.2	.6
Kansas	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	–	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Michigan	E1	46	29	3.0	125.5	1.7	4.2	63.0	200.1	287.9	482.5	11.7	2.8	129.9
Minnesota	–	5	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Missouri	E1	7	5	.5	14.4	.3	.5	5.6	28.0	9.7	37.8	(D)	.7	28.2
New Hampshire	–	5	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Jersey	–	5	4	.2	6.3	.1	.2	3.1	11.0	8.4	19.2	.4	.2	10.5
New York	–	8	4	.8	28.2	.3	.6	11.2	67.6	54.7	124.4	(D)	F	(D)
North Carolina	–	4	4	.5	13.5	.3	.6	5.1	37.4	20.4	57.6	1.5	(NA)	(D)
Ohio	–	24	15	4.9	176.1	3.4	6.5	105.7	435.3	339.4	798.1	24.2	4.6	283.6
Pennsylvania	E1	13	6	.9	30.1	.5	1.1	15.4	94.2	46.1	141.0	1.5	1.1	90.4
South Carolina	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
South Dakota	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Texas	–	9	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Virginia	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	–	10	5	2.1	73.2	1.2	2.6	37.4	144.0	147.7	292.3	(D)	G	(D)

See footnotes at end of table.

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Table 2. **Industry Statistics for Selected States: 1992 and 1987**—Con.

[Excludes data for auxiliaries. States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1992												1987	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3549, METALWORKING MACHINERY, N.E.C.														
United States	**–**	**400**	**167**	**13.2**	**487.5**	**7.9**	**17.6**	**247.2**	**942.7**	**687.6**	**1 618.3**	**27.6**	**11.3**	**588.4**
California	E2	33	6	.5	14.8	.3	.7	8.1	27.3	16.8	44.1	.6	E	(D)
Colorado	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Connecticut	–	23	5	.5	22.1	.4	.7	12.0	41.8	18.1	59.8	.5	.5	31.0
Illinois	–	40	14	1.4	46.6	.8	1.7	25.1	96.1	70.9	158.2	3.8	1.6	79.7
Indiana	–	11	8	.5	18.7	.4	.8	11.6	27.9	17.5	44.8	.9	.4	19.6
Maryland	–	5	2	.1	4.7	(Z)	.1	1.2	4.9	7.6	13.4	(D)	(NA)	(NA)
Massachusetts	–	16	5	.3	9.4	.2	.4	4.3	14.2	11.3	26.4	.4	.4	15.8
Michigan	–	65	37	2.9	123.9	1.8	4.1	66.0	225.6	227.5	456.3	5.9	2.2	123.2
Minnesota	–	8	4	.2	7.3	.1	.2	3.2	12.3	9.1	21.9	.5	(NA)	(D)
New Jersey	–	17	9	.4	13.5	.2	.4	5.1	25.5	22.4	46.7	.3	.4	20.8
New York	–	21	10	.8	27.9	.4	.9	11.8	41.5	34.7	76.9	.6	F	(D)
Ohio	–	43	24	1.9	67.1	1.2	2.8	38.5	144.7	81.8	222.6	4.4	.9	48.1
Oklahoma	–	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	E1	24	12	.9	29.1	.5	1.1	13.2	47.8	34.5	85.0	2.1	.8	39.1
Rhode Island	E2	6	3	.2	6.5	.1	.3	3.4	13.7	7.6	21.4	(D)	(NA)	(NA)
Tennessee	–	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	–	9	2	.2	7.8	.2	.4	3.6	8.7	14.6	25.3	(D)	.4	8.0
Wisconsin	–	15	8	1.0	35.2	.6	1.2	17.4	96.8	28.9	124.0	1.0	1.2	67.1

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some 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 the items shown 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 for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 100 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: C—100 to 249 employees; E—250 to 499 employees; F—500 to 999 employees; G—1,000 to 2,499 employees; H—2,500 to 4,999 employees; I—5,000 to 9,999 employees; J—10,000 to 24,999 employees; K—25,000 to 49,999 employees; L—50,000 to 99,999 employees; M—100,000 employees or more.

Table 3a. **Summary Statistics for the Industry: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Machine tools, metal cutting types (SIC 3541)	Machine tools, metal forming types (SIC 3542)	Industrial patterns (SIC 3543)	Special dies, tools, jigs, and fixtures (SIC 3544)	Machine tool accessories (SIC 3545)	Power-driven handtools (SIC 3546)	Rolling mill machinery (SIC 3547)	Welding apparatus (SIC 3548)	Metalworking machinery, n.e.c. (SIC 3549)
Companies ---- number	391	211	708	7 227	1 759	214	87	215	389
All establishments ---- number	422	217	711	7 350	1 866	226	89	240	400
With 1 to 19 employees ---- number	202	103	624	5 829	1 381	157	49	110	233
With 20 to 99 employees ---- number	161	85	82	1 393	400	39	28	79	134
With 100 employees or more ---- number	59	29	5	128	85	30	12	51	33
Employment and labor costs:									
Employees ---- 1,000	27.0	12.2	7.9	111.4	42.7	16.1	5.4	19.8	13.2
Compensation, total ---- mil dol	1 232.2	532.1	315.7	4 762.5	1 560.6	566.5	231.9	833.7	596.6
Annual payroll ---- mil dol	982.1	417.6	258.7	3 898.3	1 243.9	440.6	186.8	670.3	487.5
Fringe benefits ---- mil dol	250.1	114.6	57.0	864.2	316.7	125.9	45.1	163.4	109.1
Social Security and other legally required payments ---- mil dol	94.6	43.1	21.1	361.1	125.7	45.7	19.0	67.1	44.5
Employer voluntary payments ---- mil dol	155.5	71.5	35.8	503.0	191.0	80.2	26.1	96.3	64.6
Production workers:									
Average for year ---- 1,000	15.2	7.8	6.5	85.3	30.1	10.6	3.0	11.9	7.9
March ---- 1,000	15.5	7.9	6.6	85.5	30.3	10.6	3.0	11.9	8.1
May ---- 1,000	15.2	7.8	6.6	85.5	30.4	10.6	3.0	11.9	8.0
August ---- 1,000	15.2	7.8	6.6	85.6	30.4	10.7	3.0	12.0	7.9
November ---- 1,000	15.0	7.6	6.3	85.0	29.5	10.6	3.0	11.8	7.7
Hours ---- millions	32.2	15.8	13.2	188.4	62.4	21.7	6.3	24.7	17.6
Wages ---- mil dol	498.5	236.9	199.6	2 744.8	748.5	240.5	85.2	342.7	247.2
Cost of materials[1] ---- mil dol	1 762.0	700.1	125.7	2 690.7	1 113.9	1 359.9	288.6	1 250.3	687.6
Materials, parts, containers, etc., consumed[2] ---- mil dol	1 414.7	593.7	99.4	1 932.1	844.4	1 079.3	218.9	1 057.1	552.4
Resales ---- mil dol	209.4	32.4	3.1	111.0	126.8	235.3	22.8	108.4	40.5
Fuels ---- mil dol	9.6	4.6	2.8	27.9	10.5	3.2	2.4	8.6	3.2
Purchased electricity ---- mil dol	30.8	13.6	6.2	105.5	54.7	19.2	7.2	26.5	10.1
Contract work ---- mil dol	97.5	55.8	14.1	514.3	77.6	22.9	37.4	49.7	81.4
Quantity of electric energy used for heat and power:									
Purchased ---- mil kWh	488.6	213.4	93.7	1 509.9	833.8	321.2	95.0	397.1	148.9
Generated less sold ---- mil kWh	(D)	–	(Z)	(D)	(D)	–	–	–	–
Total value of shipments ---- mil dol	3 567.8	1 450.9	539.0	9 309.8	3 786.3	2 872.5	602.8	2 763.5	1 618.3
Value added ---- mil dol	1 840.9	728.6	416.3	6 644.7	2 653.6	1 506.8	313.2	1 499.9	942.7

See footnotes at end of table.

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Table 3a. **Summary Statistics for the Industry: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Machine tools, metal cutting types (SIC 3541)	Machine tools, metal forming types (SIC 3542)	Industrial patterns (SIC 3543)	Special dies, tools, jigs, and fixtures (SIC 3544)	Machine tool accessories (SIC 3545)	Power-driven handtools (SIC 3546)	Rolling mill machinery (SIC 3547)	Welding apparatus (SIC 3548)	Metalworking machinery, n.e.c. (SIC 3549)
Inventories by stage of fabrication:									
Beginning of 1992 ---mil dol	1 181.5	449.5	39.3	1 158.9	793.0	377.7	169.1	655.8	329.7
Finished goods ---mil dol	288.7	167.9	4.0	187.6	365.5	213.0	15.7	229.1	64.2
Work in process ---mil dol	660.0	192.9	26.4	751.4	265.6	74.3	123.1	168.3	199.1
Materials and supplies ---mil dol	232.8	88.6	8.9	219.9	161.9	90.4	30.3	258.4	66.4
End of 1992 ---mil dol	1 221.7	425.7	41.8	1 199.1	785.0	377.6	170.7	595.5	339.7
Finished goods ---mil dol	297.8	122.6	4.2	197.7	349.8	205.6	19.0	212.0	66.9
Work in process ---mil dol	686.0	216.0	29.2	766.9	262.5	75.8	118.9	172.1	208.5
Materials and supplies ---mil dol	237.9	87.1	8.4	234.5	172.7	96.2	32.9	211.4	64.3

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. **Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1992**

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Machine tools, metal cutting types (SIC 3541)	Machine tools, metal forming types (SIC 3542)	Industrial patterns (SIC 3543)	Special dies, tools, jigs, and fixtures (SIC 3544)	Machine tool accessories (SIC 3545)	Power-driven handtools (SIC 3546)	Rolling mill machinery (SIC 3547)	Welding apparatus (SIC 3548)	Metalworking machinery, n.e.c. (SIC 3549)
Gross book value of depreciable assets:									
Total:									
Beginning of year	1 309.2	599.6	216.1	4 292.6	1 718.5	835.7	241.2	805.5	458.0
New capital expenditures[1]	82.4	40.4	15.1	370.1	142.2	72.3	13.7	65.8	27.6
Used capital expenditures	13.3	1.2	1.9	66.1	13.9	3.5	1.6	2.3	4.7
Retirements	85.4	25.1	5.9	134.8	60.2	30.0	4.7	15.9	16.2
End of year	1 319.5	616.0	227.1	4 594.0	1 814.4	881.5	251.8	857.6	474.1
Buildings and other structures:									
Beginning of year	327.0	139.3	39.7	651.5	322.8	155.1	48.6	221.8	104.6
New capital expenditures	18.3	7.6	1.1	48.5	17.3	4.3	2.1	21.5	5.3
Used capital expenditures	3.0	.5	.2	7.3	1.8	.6	.2	.3	2.1
Retirements	9.5	4.5	.2	7.6	5.4	1.7	.1	.4	1.9
End of year	338.8	142.8	40.9	699.6	336.5	158.3	50.7	243.2	110.0
Machinery and equipment:									
Beginning of year	982.3	460.3	176.3	3 641.1	1 395.8	680.7	192.6	583.6	353.4
New capital expenditures[1]	64.1	32.8	14.0	321.6	124.9	68.1	11.7	44.3	22.3
Used capital expenditures	10.3	.7	1.7	58.9	12.0	2.8	1.5	1.9	2.6
Retirements	75.9	20.6	5.7	127.2	54.8	28.3	4.6	15.5	14.2
End of year	980.7	473.2	186.2	3 894.4	1 477.9	723.3	201.1	614.4	364.1
Depreciation charges during 1992:									
Total	113.1	40.3	22.1	474.1	128.2	71.3	18.7	63.2	40.1
Buildings and other structures	16.1	5.2	2.5	45.0	13.7	6.7	2.5	9.0	5.4
Machinery and equipment	97.0	35.2	19.7	429.1	114.5	64.6	16.2	54.1	34.7
Rental payments:									
Total	43.1	12.8	11.5	186.3	54.1	15.3	6.2	18.6	24.8
Buildings and other structures	22.5	7.6	6.1	102.5	26.9	5.3	4.4	12.7	12.9
Machinery and equipment	20.6	5.2	5.3	83.8	27.2	10.1	1.8	5.9	11.9

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Machine tools, metal cutting types (SIC 3541)		Machine tools, metal forming types (SIC 3542)		Industrial patterns (SIC 3543)		Special dies, tools, jigs, and fixtures (SIC 3544)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	7.9	(X)	3.0	(X)	.4	(X)	18.2	(X)
Response coverage ratio (percent)[2]	85.1	(X)	84.2	(X)	78.5	(X)	78.1	(X)
Machinery	14.8	(X)	7.4	(X)	1.4	(X)	59.1	(X)
Response coverage ratio (percent)[2]	85.2	(X)	89.4	(X)	78.9	(X)	81.1	(X)
Other purchased services:								
Communications	10.2	(X)	4.3	(X)	1.0	(X)	26.3	(X)
Response coverage ratio (percent)[2]	85.3	(X)	75.8	(X)	74.1	(X)	79.6	(X)
Legal	9.1	(X)	6.5	(X)	1.2	(X)	15.1	(X)
Response coverage ratio (percent)[2]	87.3	(X)	84.2	(X)	77.8	(X)	79.8	(X)
Accounting and bookkeeping	10.6	(X)	2.1	(X)	1.4	(X)	33.3	(X)
Response coverage ratio (percent)[2]	87.4	(X)	77.2	(X)	78.1	(X)	82.5	(X)
Advertising	12.6	(X)	8.0	(X)	.5	(X)	17.5	(X)
Response coverage ratio (percent)[2]	87.3	(X)	89.4	(X)	77.8	(X)	81.3	(X)
Software and other data processing	9.7	(X)	2.1	(X)	.6	(X)	11.2	(X)
Response coverage ratio (percent)[2]	82.3	(X)	77.2	(X)	77.8	(X)	77.9	(X)
Refuse removal, including hazardous waste	2.4	(X)	.8	(X)	.6	(X)	5.5	(X)
Response coverage ratio (percent)[2]	83.3	(X)	77.2	(X)	77.6	(X)	78.9	(X)

See footnotes at end of table.

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Table 3c. **Supplemental Industry Statistics Based on Sample Estimates: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Machine tools, metal cutting types (SIC 3541)		Machine tools, metal forming types (SIC 3542)		Industrial patterns (SIC 3543)		Special dies, tools, jigs, and fixtures (SIC 3544)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
New machinery and equipment expenditures	64.1	(X)	32.8	(X)	14.0	(X)	321.6	(X)
Automobiles, trucks, etc., for highway use	2.6	32	(S)	(X)	(S)	(X)	16.5	16
Computers and peripheral data processing equipment	7.0	13	(S)	(X)	(S)	(X)	41.2	15
All other	54.5	3	(S)	(X)	(S)	(X)	264.0	4
Adjustment ratio[3]	1.3	(X)	(S)	(X)	(S)	(X)	1.2	(X)
Cost of materials, components, parts, etc., used	1 414.7	(X)	593.7	(X)	99.4	(X)	1 932.1	(X)
Materials purchased or transferred from foreign sources[4]	(S)	(X)	19.7	8	(S)	(X)	32.9	13
Materials purchased or transferred from domestic sources	(S)	(X)	573.9	1	(S)	(X)	1 899.1	1
Adjustment ratio[3]	(S)	(X)	1.6	(X)	(S)	(X)	1.8	(X)

Item	Machine tool accessories (SIC 3545)		Power-driven handtools (SIC 3546)		Rolling mill machinery (SIC 3547)		Welding apparatus (SIC 3548)		Metalworking machinery, n.e.c. (SIC 3549)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:										
Cost of purchased services for the repair of–										
Buildings and other structures	6.8	(X)	3.4	(X)	1.0	(X)	3.6	(X)	2.4	(X)
Response coverage ratio (percent)[2]	80.1	(X)	95.3	(X)	67.2	(X)	91.1	(X)	70.7	(X)
Machinery	35.8	(X)	10.8	(X)	2.1	(X)	9.5	(X)	4.5	(X)
Response coverage ratio (percent)[2]	84.1	(X)	96.3	(X)	73.9	(X)	95.2	(X)	71.5	(X)
Other purchased services:										
Communications	13.8	(X)	7.0	(X)	1.4	(X)	8.1	(X)	3.7	(X)
Response coverage ratio (percent)[2]	81.3	(X)	96.3	(X)	89.4	(X)	79.1	(X)	79.6	(X)
Legal	8.3	(X)	6.1	(X)	1.1	(X)	5.6	(X)	4.3	(X)
Response coverage ratio (percent)[2]	81.2	(X)	96.3	(X)	89.6	(X)	90.2	(X)	78.9	(X)
Accounting and bookkeeping	6.2	(X)	.7	(X)	.9	(X)	4.6	(X)	7.2	(X)
Response coverage ratio (percent)[2]	77.6	(X)	96.3	(X)	89.6	(X)	90.2	(X)	80.8	(X)
Advertising	17.2	(X)	23.5	(X)	1.2	(X)	13.2	(X)	6.7	(X)
Response coverage ratio (percent)[2]	84.2	(X)	96.3	(X)	89.6	(X)	93.9	(X)	80.8	(X)
Software and other data processing	5.5	(X)	3.1	(X)	.2	(X)	2.3	(X)	3.8	(X)
Response coverage ratio (percent)[2]	80.2	(X)	96.3	(X)	89.6	(X)	93.0	(X)	78.9	(X)
Refuse removal, including hazardous waste	3.1	(X)	3.0	(X)	.2	(X)	2.6	(X)	.4	(X)
Response coverage ratio (percent)[2]	77.7	(X)	96.3	(X)	73.9	(X)	94.8	(X)	79.3	(X)
New machinery and equipment expenditures	124.9	(X)	68.1	(X)	11.7	(X)	44.3	(X)	22.3	(X)
Automobiles, trucks, etc., for highway use	6.9	32	.8	44	(S)	(X)	1.3	19	1.0	20
Computers and peripheral data processing equipment	11.1	12	4.4	5	(S)	(X)	8.5	8	6.0	21
All other	106.9	3	62.9	1	(S)	(X)	34.5	3	15.3	9
Adjustment ratio[3]	1.3	(X)	1.1	(X)	(S)	(X)	1.1	(X)	1.7	(X)
Cost of materials, components, parts, etc., used	844.4	(X)	1 079.3	(X)	218.9	(X)	1 057.1	(X)	552.4	(X)
Materials purchased or transferred from foreign sources[4]	130.2	17	161.9	11	(S)	(X)	57.1	8	(S)	(X)
Materials purchased or transferred from domestic sources	714.1	4	917.5	3	(S)	(X)	1 000.0	1	(S)	(X)
Adjustment ratio[3]	1.6	(X)	1.2	(X)	(S)	(X)	1.3	(X)	(S)	(X)

Note: The amounts shown for purchased services reflect only those services that establishments purchase from other companies. Amounts purchased by separate central administrative offices and services provided to establishments by central administrative offices are excluded.

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported to the weighted total employment for all ASM establishments classified in the industry.
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response of the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. **Industry Statistics by Employment Size of Establishment: 1992**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3541, MACHINE TOOLS, METAL CUTTING TYPES												
Total	**–**	**422**	**27.0**	**982.1**	**15.2**	**32.2**	**498.5**	**1 840.9**	**1 762.0**	**3 567.8**	**82.4**	**1 221.7**
Establishments with an average of–												
1 to 4 employees	E1	34	.1	2.7	.1	.2	1.6	4.8	3.4	8.0	.2	2.0
5 to 9 employees	E1	61	.4	13.1	.3	.5	7.1	23.7	19.7	42.7	.7	11.7
10 to 19 employees	E1	107	1.5	44.6	1.0	1.9	24.8	79.0	66.2	145.1	3.0	44.5
20 to 49 employees	–	109	3.4	110.4	2.0	4.2	57.1	197.6	177.5	394.1	8.0	108.8
50 to 99 employees	E1	52	3.6	125.4	1.9	4.1	63.5	266.9	261.7	529.5	11.2	171.1
100 to 249 employees	–	37	5.5	200.4	3.1	6.8	101.0	290.8	332.3	643.1	12.2	250.9
250 to 499 employees	–	16	5.5	204.6	3.4	6.8	111.3	446.7	459.0	869.9	14.9	307.4
500 to 999 employees	–	4	7.1	280.9	3.5	7.6	132.1	531.4	442.1	935.4	32.1	325.2
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	2	(Z)	.3	(Z)	(Z)	.1	.3	.2	.5	(Z)	.2

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3542, MACHINE TOOLS, METAL FORMING TYPES												
Total	**–**	**217**	**12.2**	**417.6**	**7.8**	**15.8**	**236.9**	**728.6**	**700.1**	**1 450.9**	**40.4**	**425.7**
Establishments with an average of—												
1 to 4 employees	E4	13	(Z)	.7	(Z)	(Z)	.4	1.8	1.2	3.1	(Z)	.6
5 to 9 employees	E1	35	.2	7.5	.2	.3	4.1	17.6	13.4	30.1	.3	8.8
10 to 19 employees	–	55	.8	21.9	.5	1.0	12.3	43.4	32.0	72.5	1.5	14.5
20 to 49 employees	–	53	1.6	51.9	1.1	2.3	28.4	90.4	62.6	152.7	4.0	36.0
50 to 99 employees	–	32	2.2	71.9	1.4	2.8	38.5	131.4	148.9	296.0	6.7	77.2
100 to 249 employees	E1	21	3.0	111.3	1.8	3.9	61.4	204.3	193.6	402.7	19.6	145.8
250 to 499 employees	–	3	1.1	38.6	.7	1.5	24.2	78.7	47.9	123.2	(D)	33.5
500 to 999 employees	–	5	3.3	113.8	2.1	4.0	67.7	160.9	200.4	370.5	8.3	109.3
INDUSTRY 3543, INDUSTRIAL PATTERNS												
Total	**E1**	**711**	**7.9**	**258.7**	**6.5**	**13.2**	**199.6**	**416.3**	**125.7**	**539.0**	**15.1**	**41.8**
Establishments with an average of—												
1 to 4 employees	E7	278	.5	15.7	.4	.9	12.4	27.7	9.3	36.9	1.0	2.4
5 to 9 employees	E2	192	1.3	35.9	1.1	2.1	28.6	60.0	17.0	77.1	1.9	4.3
10 to 19 employees	–	154	2.1	68.8	1.7	3.4	53.2	107.4	31.0	138.4	4.2	9.0
20 to 49 employees	–	68	2.1	75.2	1.7	3.6	55.8	120.3	34.6	154.9	4.8	11.7
50 to 99 employees	E2	14	1.0	37.2	.8	1.6	29.0	61.4	18.7	79.1	2.2	8.1
100 to 249 employees	–	4	.9	25.8	.8	1.6	20.7	39.5	15.1	52.5	1.0	6.3
250 to 499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	287	.8	17.0	.6	1.2	13.1	30.5	11.3	41.8	1.3	2.5
INDUSTRY 3544, SPECIAL DIES, TOOLS, JIGS, AND FIXTURES												
Total	**E1**	**7 350**	**111.4**	**3 898.3**	**85.3**	**188.4**	**2 744.8**	**6 644.7**	**2 690.7**	**9 309.8**	**370.1**	**1 199.1**
Establishments with an average of—												
1 to 4 employees	E7	2 672	4.8	141.0	3.8	8.4	102.8	258.4	111.3	370.6	13.9	47.8
5 to 9 employees	E1	1 623	10.9	318.7	8.3	17.7	231.6	516.0	224.2	738.6	26.4	81.8
10 to 19 employees	–	1 534	21.1	673.6	16.1	34.3	478.4	1 083.6	451.2	1 535.0	63.9	157.4
20 to 49 employees	–	1 090	32.4	1 158.3	24.9	55.6	802.4	1 916.8	762.0	2 663.1	106.3	327.6
50 to 99 employees	–	303	20.4	755.4	15.8	35.9	529.6	1 351.8	551.0	1 885.6	83.9	262.7
100 to 249 employees	–	112	15.5	582.6	11.3	25.0	394.4	1 045.3	427.7	1 485.5	54.4	235.8
250 to 499 employees	E2	12	4.0	161.9	3.0	6.9	113.0	300.1	128.9	425.1	13.8	62.9
500 to 999 employees	–	4	2.4	106.9	2.1	4.6	92.7	172.8	34.4	206.3	7.6	23.2
Covered by administrative records[2]	E9	2 604	5.7	140.9	4.5	9.7	100.7	256.6	107.3	363.9	14.8	48.4
INDUSTRY 3545, MACHINE TOOL ACCESSORIES												
Total	**–**	**1 866**	**42.7**	**1 243.9**	**30.1**	**62.4**	**748.5**	**2 653.6**	**1 113.9**	**3 786.3**	**142.2**	**785.0**
Establishments with an average of—												
1 to 4 employees	E8	788	1.4	38.9	1.0	2.1	25.1	81.3	38.0	120.6	4.0	25.5
5 to 9 employees	E2	314	2.1	56.7	1.5	3.2	35.8	109.3	45.6	155.0	4.2	29.6
10 to 19 employees	E1	279	3.9	109.3	2.8	5.7	66.5	210.9	87.3	297.1	9.0	50.0
20 to 49 employees	–	285	8.9	259.1	6.4	13.3	162.3	515.0	200.2	717.8	21.3	123.5
50 to 99 employees	–	115	7.9	231.8	5.7	12.0	140.0	521.4	212.8	732.6	23.7	170.0
100 to 249 employees	–	67	10.0	291.9	7.0	14.3	173.1	649.4	302.9	952.0	43.0	217.0
250 to 499 employees	–	13	4.9	156.3	3.1	6.5	80.2	407.5	129.5	550.5	24.1	93.9
500 to 999 employees	–	4	3.6	100.0	2.7	5.2	65.5	159.0	97.6	260.7	12.7	75.5
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	773	1.6	39.2	1.1	2.3	25.1	84.3	39.1	123.5	4.2	27.1
INDUSTRY 3546, POWER-DRIVEN HANDTOOLS												
Total	**–**	**226**	**16.1**	**440.6**	**10.6**	**21.7**	**240.5**	**1 506.8**	**1 359.9**	**2 872.5**	**72.3**	**377.6**
Establishments with an average of—												
1 to 4 employees	E9	81	.2	3.9	.1	.2	2.1	11.0	11.1	22.2	.8	3.3
5 to 9 employees	E7	46	.3	7.7	.2	.4	4.2	20.5	21.3	42.1	1.3	6.4
10 to 19 employees	E3	30	.4	11.0	.3	.5	5.5	24.9	22.8	47.5	1.3	7.8
20 to 49 employees	E3	21	.6	15.7	.4	.8	8.0	42.9	34.7	77.4	2.3	15.1
50 to 99 employees	–	18	1.3	33.1	.8	1.6	16.7	77.1	68.9	145.5	3.6	33.8
100 to 249 employees	E1	10	1.8	55.0	1.0	2.1	28.4	130.6	49.9	178.9	6.8	56.3
250 to 499 employees	–	9	3.3	86.8	2.2	4.2	51.1	263.8	372.2	649.0	13.7	79.8
500 to 999 employees	–	9	8.3	227.4	5.5	11.8	124.4	936.0	779.0	1 710.0	42.5	175.0
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	102	.3	7.1	.2	.5	3.9	19.0	19.0	38.0	1.3	5.7

See footnotes at end of table.

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Table 4. **Industry Statistics by Employment Size of Establishment: 1992**—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3547, ROLLING MILL MACHINERY												
Total	**E2**	**89**	**5.4**	**186.8**	**3.0**	**6.3**	**85.2**	**313.2**	**288.6**	**602.8**	**13.7**	**170.7**
Establishments with an average of—												
1 to 4 employees	E8	21	(Z)	1.1	(Z)	(Z)	.6	2.0	1.9	3.9	.1	1.6
5 to 9 employees	E8	15	.1	2.5	.1	.1	1.4	3.7	3.3	7.0	.2	2.4
10 to 19 employees	E2	13	.2	4.1	.1	.2	2.2	7.5	5.1	12.2	.3	4.7
20 to 49 employees	–	17	.5	15.9	.3	.6	7.6	24.9	23.0	48.4	.6	10.6
50 to 99 employees	–	11	.8	30.4	.5	1.1	14.7	62.4	36.4	97.2	1.0	18.6
100 to 249 employees	E1	7	1.2	45.8	.8	1.8	28.7	74.0	64.2	137.9	2.8	54.3
250 to 499 employees	–	4	2.7	87.1	1.2	2.5	30.2	138.6	154.8	296.1	8.6	78.5
1,000 to 2,499 employees	E9	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	31	.1	3.0	.1	.2	1.4	4.6	4.6	9.1	.3	3.7
INDUSTRY 3548, WELDING APPARATUS												
Total	**–**	**240**	**19.8**	**670.3**	**11.9**	**24.7**	**342.7**	**1 499.9**	**1 250.3**	**2 763.5**	**65.8**	**595.5**
Establishments with an average of—												
1 to 4 employees	E9	48	.1	2.2	.1	.1	1.2	5.4	4.4	9.7	.2	2.2
5 to 9 employees	E6	29	.2	4.9	.1	.2	2.6	9.4	7.0	16.6	.4	3.5
10 to 19 employees	E2	33	.5	15.6	.3	.6	8.5	32.0	25.2	56.8	1.1	11.9
20 to 49 employees	E1	59	2.0	62.6	1.2	2.7	33.1	121.8	100.1	227.1	7.1	51.9
50 to 99 employees	–	20	1.4	41.6	.9	1.8	21.4	107.1	74.0	181.6	4.5	41.8
100 to 249 employees	E1	30	4.8	162.1	2.6	5.6	75.7	330.5	300.8	631.1	13.7	142.1
250 to 499 employees	–	16	5.3	176.4	3.2	6.7	87.1	452.8	390.5	834.5	15.6	156.3
500 to 999 employees	–	3	5.6	204.8	3.5	6.9	113.0	441.0	348.2	806.1	23.3	185.8
1,000 to 2,499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	68	.3	6.7	.2	.3	3.6	13.2	10.6	23.8	.6	5.1
INDUSTRY 3549, METALWORKING MACHINERY, N.E.C.												
Total	**–**	**400**	**13.2**	**487.5**	**7.9**	**17.6**	**247.2**	**942.7**	**687.6**	**1 618.3**	**27.6**	**339.7**
Establishments with an average of—												
1 to 4 employees	E8	88	.2	4.6	.1	.2	2.4	9.4	6.6	16.0	.3	3.4
5 to 9 employees	E4	66	.5	12.0	.3	.6	6.4	25.7	19.7	45.9	.6	8.4
10 to 19 employees	E1	79	1.1	35.5	.7	1.5	18.5	73.0	48.0	121.5	2.1	23.3
20 to 49 employees	–	89	2.7	89.6	1.7	3.7	46.2	149.6	111.4	265.0	4.1	53.5
50 to 99 employees	–	45	3.0	113.8	1.7	3.7	54.9	222.5	154.1	370.8	4.6	89.9
100 to 249 employees	–	28	3.9	147.2	2.6	5.8	81.9	305.7	219.5	507.7	12.0	113.1
250 to 499 employees	–	4	1.8	84.8	.9	2.1	37.0	156.8	128.4	291.5	4.0	47.9
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	115	.4	10.4	.3	.6	5.2	18.2	14.6	32.8	.5	7.2

Note: For qualifications of data, see footnotes on table 1a. Data shown as (D) are included in underscored figures above.

[1]Payroll and sales data for some small single-establishment manufacturing 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 the items shown 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 for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single-establishment companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1992 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3541	**Machine tools, metal cutting types:**										
	All establishments in industry	422	27.0	982.1	15.2	32.2	498.5	1 840.9	1 762.0	3 567.8	82.4
	Establishments with this product class primary:										
35413	Gear cutting machines	6	1.5	62.3	.8	1.7	28.9	90.5	86.9	172.7	(D)
35414	Grinding, polishing, buffing, honing, and lapping machines, except gear-tooth grinding, lapping, polishing, and buffing	62	3.4	114.8	1.7	3.6	51.6	186.4	203.0	404.5	9.5
35415	Lathes (turning machines)	26	2.8	88.4	1.8	3.4	48.1	172.8	208.4	372.3	7.4
35416	Milling machines (excluding machining centers)	18	3.5	135.0	1.9	3.5	62.4	329.1	195.4	508.3	10.1
35418	Machine tools designed primarily for home workshops, labs, garages, etc. (metalworking and primarily metalworking)	12	.2	6.6	.1	.2	2.4	11.4	10.2	22.5	(D)
35419	Parts for metal cutting machine tools (sold separately) and rebuilt metal cutting machine tools	87	3.9	122.0	2.2	4.3	59.4	230.6	138.5	390.3	5.6
3541A	Machining centers (multifunction numerically controlled machines)	28	3.0	127.9	1.5	3.5	56.9	292.1	267.4	528.2	11.0
3541B	Station type machines	20	3.5	149.1	2.2	5.3	92.1	251.0	424.1	643.4	10.9
3541C	Other metal cutting machine tools (except those designed primarily for home workshops, laboratories, garages, etc.)	67	2.4	76.2	1.4	2.8	38.5	142.5	118.9	264.3	4.6
3541D	Boring machines (excluding machining centers) and drilling machines (excluding machining centers)	35	1.5	54.2	1.0	2.1	32.9	74.0	53.7	143.2	3.9
3542	**Machine tools, metal forming types:**										
	All establishments in industry	217	12.2	417.6	7.8	15.8	236.9	728.6	700.1	1 450.9	40.4
	Establishments with this product class primary:										
35421	Punching and shearing machines (including power and manual) and bending and forming machines (power only)	64	4.2	136.9	2.5	4.9	69.8	277.8	208.0	502.1	21.2
35422	Metalworking presses (except forging and die-stamping presses)	41	3.6	127.6	2.2	4.4	73.7	180.6	221.0	391.7	8.6
35423	Other metal forming machine tools, including forging and die-stamping machines (except metalworking presses)	46	2.9	97.5	2.0	4.3	60.6	163.6	144.1	324.2	5.6
35424	Parts for metal forming machine tools (sold separately) and rebuilt metal forming machine tools	39	1.3	47.2	.9	1.8	27.9	90.5	114.2	204.8	4.6
3543	**Industrial patterns:**										
	All establishments in industry	711	7.9	258.7	6.5	13.2	199.6	416.3	125.7	539.0	15.1
3544	**Special dies, tools, jigs, and fixtures:**										
	All establishments in industry	7 350	111.4	3 898.3	85.3	188.4	2 744.8	6 644.7	2 690.7	9 309.8	370.1
	Establishments with this product class primary:										
35441	Special dies and tools, die sets, jigs, and fixtures	2 215	52.6	1 900.5	39.7	86.9	1 318.3	3 226.8	1 281.9	4 489.2	158.6
35442	Industrial molds and mold boxes	1 589	36.8	1 378.4	28.5	64.7	988.3	2 342.2	943.4	3 279.1	153.3
3545	**Machine tool accessories:**										
	All establishments in industry	1 866	42.7	1 243.9	30.1	62.4	748.5	2 653.6	1 113.9	3 786.3	142.2
	Establishments with this product class primary:										
35451	Small cutting tools for machine tools and metalworking machinery	505	24.9	707.5	18.1	37.5	438.5	1 575.6	642.2	2 236.4	92.0
35454	Other attachments and accessories for machine tools and metalworking machinery	145	6.4	201.2	4.2	8.8	114.4	406.4	176.2	584.2	20.4
35455	Precision measuring tools (inspection, quality control, tool room, and machinists')	77	4.7	151.4	2.9	6.0	80.5	303.0	131.0	431.5	13.5
3546	**Power-driven handtools:**										
	All establishments in industry	226	16.1	440.6	10.6	21.7	240.5	1 506.8	1 359.9	2 872.5	72.3
	Establishments with this product class primary:										
35462	Power-driven handtools, pneumatic, hydraulic, and powder-actuated	45	5.4	177.3	3.1	5.9	88.1	406.7	217.3	626.6	18.5
35463	Power-driven handtools, engine (internal combustion) driven	6	2.0	46.9	1.2	1.8	21.7	141.5	265.4	416.7	(D)
35464	Power-driven handtools, battery-powered (cordless)	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
35465	Power-driven handtools, electric (excluding battery-powered)	27	7.0	176.2	5.1	11.2	107.1	724.5	710.9	1 428.9	33.5
3547	**Rolling mill machinery:**										
	All establishments in industry	89	5.4	186.8	3.0	6.3	85.2	313.2	288.6	602.8	13.7
	Establishments with this product class primary:										
35471	Hot rolling mill machinery (including combination hot and cold) (except tube rolling)	9	1.3	51.2	.6	1.2	17.5	67.9	77.4	149.3	(D)
35472	Cold rolling mill machinery	7	.4	16.3	.3	.7	9.2	35.3	22.3	58.7	.6
35473	Other rolling mill machinery (including tube mill machinery) and parts for all rolling mill machinery	29	1.9	70.4	1.0	2.2	34.9	132.0	111.0	239.2	4.4
3548	**Welding apparatus:**										
	All establishments in industry	240	19.8	670.3	11.9	24.7	342.7	1 499.9	1 250.3	2 763.5	65.8
	Establishments with this product class primary:										
35481	Arc welding machines, components, and accessories (except electrodes), excluding stud welding equipment	38	8.8	314.8	5.1	10.3	153.4	623.3	596.4	1 231.5	31.3
35482	Arc welding electrodes, metal	16	2.5	82.2	1.6	3.2	48.0	307.5	223.4	535.5	9.1
35483	Resistance welders, components, accessories, and electrodes	31	2.5	96.2	1.6	4.1	56.6	164.5	136.2	301.0	8.0
35484	Gas welding and cutting equipment, parts, attachments, and accessories	23	2.6	64.6	1.7	3.3	32.6	151.5	111.6	262.6	3.2
35485	Other welding equipment, components, and accessories (excluding arc, resistance, and gas)	17	2.1	72.9	1.0	2.0	30.8	162.7	109.0	269.0	10.3

See footnotes at end of table.

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Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1992—Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3549	**Metalworking machinery, n.e.c.:**										
	All establishments in industry	400	13.2	487.5	7.9	17.6	247.2	942.7	687.6	1 618.3	27.6
	Establishments with this product class primary:										
35492	Assembly machines	108	6.4	275.5	3.9	9.0	145.7	523.6	369.0	880.4	13.5
35495	Other metalworking machinery (except handheld and ultrasonic)	104	4.5	150.0	2.6	5.5	71.4	310.3	232.8	542.1	11.5

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3541, MACHINE TOOLS, METAL CUTTING TYPES			
Total value of shipments	3 567.8	3 189.5	4 411.5
Primary products value of shipments	2 837.4	2 394.1	3 877.2
Secondary products value of shipments	317.4	484.8	340.7
Total miscellaneous receipts	413.0	310.6	193.6
Value of resales	270.8	206.7	91.3
Contract receipts	30.9	37.2	28.0
Other miscellaneous receipts	111.3	66.7	74.2
Sales of scrap and refuse	1.5	.2	.6
Receipts for installation (or construction) of products of this establishment	16.5	(D)	5.7
Receipts for research and development	18.0	4.0	.3
Receipts for repair work	38.4	40.9	40.6
Other miscellaneous receipts	24.6	(D)	25.2
Other miscellaneous receipts, n.s.k.	12.4	.7	1.8
Primary products specialization ratio	90	83	92
Value of primary products shipments made in all industries	3 053.6	2 585.2	4 154.7
Value of primary products shipments made in this industry	2 837.4	2 394.1	3 877.2
Value of primary products shipments made in other industries	216.3	191.2	277.5
Coverage ratio	93	93	93
INDUSTRY 3542, MACHINE TOOLS, METAL FORMING TYPES			
Total value of shipments	1 450.9	1 396.3	1 428.7
Primary products value of shipments	1 242.2	1 186.1	1 210.5
Secondary products value of shipments	114.7	116.7	143.6
Total miscellaneous receipts	94.0	93.5	74.6
Value of resales	54.0	70.3	21.6
Contract receipts	9.8	8.4	23.5
Other miscellaneous receipts	30.2	14.8	(D)
Sales of scrap and refuse	.4	.4	(D)
Receipts for installation (or construction) of products of this establishment	3.5	1.2	3.8
Receipts for research and development	(D)	(D)	(D)
Receipts for repair work	14.6	3.8	16.0
Other miscellaneous receipts	(D)	(D)	6.9
Other miscellaneous receipts, n.s.k.	1.8	2.4	(NA)
Primary products specialization ratio	92	91	89
Value of primary products shipments made in all industries	1 396.7	1 370.3	1 383.9
Value of primary products shipments made in this industry	1 242.2	1 186.1	1 210.5
Value of primary products shipments made in other industries	154.5	184.3	173.4
Coverage ratio	89	87	87
INDUSTRY 3543, INDUSTRIAL PATTERNS			
Total value of shipments	539.0	499.4	452.3
Primary products value of shipments	485.8	445.0	428.8
Secondary products value of shipments	26.6	36.5	13.4
Total miscellaneous receipts	26.5	17.9	10.1
Value of resales	3.7	2.2	1.3
Contract receipts	18.0	11.6	(NA)
Other miscellaneous receipts	4.8	4.1	8.8
Primary products specialization ratio	95	92	97
Value of primary products shipments made in all industries	672.3	558.5	561.5
Value of primary products shipments made in this industry	485.8	445.0	428.8
Value of primary products shipments made in other industries	186.5	113.5	132.7
Coverage ratio	72	80	76

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3544, SPECIAL DIES, TOOLS, JIGS, AND FIXTURES			
Total value of shipments	9 309.8	7 550.1	5 374.9
Primary products value of shipments	8 245.4	6 678.0	4 795.1
Secondary products value of shipments	507.2	418.8	298.3
Total miscellaneous receipts	557.2	453.2	281.5
Value of resales	174.3	115.6	80.1
Contract receipts	236.8	237.2	142.3
Other miscellaneous receipts	146.1	100.4	59.2
Sales of scrap and refuse	4.3	4.9	1.7
Receipts for research and development	11.0	5.8	1.9
Receipts for repair work	67.7	35.1	30.3
Other miscellaneous receipts	32.6	28.5	13.4
Other miscellaneous receipts, n.s.k.	30.5	26.1	11.9
Primary products specialization ratio	94	94	94
Value of primary products shipments made in all industries	10 252.2	8 147.1	6 099.3
Value of primary products shipments made in this industry	8 245.4	6 678.0	4 795.1
Value of primary products shipments made in other industries	2 006.8	1 469.1	1 304.2
Coverage ratio	80	82	79
INDUSTRY 3545, MACHINE TOOL ACCESSORIES			
Total value of shipments	3 786.3	3 601.0	3 165.3
Primary products value of shipments	3 312.3	3 162.9	2 740.5
Secondary products value of shipments	187.7	217.3	242.9
Total miscellaneous receipts	286.3	220.8	181.9
Value of resales	189.2	144.0	115.6
Contract receipts	56.7	51.9	33.2
Other miscellaneous receipts	40.4	24.9	33.0
Sales of scrap and refuse	2.3	1.0	1.5
Receipts for research and development	1.1	.9	2.4
Receipts for repair work	25.3	17.3	10.6
Other miscellaneous receipts	10.5	4.5	18.0
Other miscellaneous receipts, n.s.k.	1.2	1.2	.5
Primary products specialization ratio	95	94	92
Value of primary products shipments made in all industries	3 619.4	3 422.0	3 069.1
Value of primary products shipments made in this industry	3 312.3	3 162.9	2 740.5
Value of primary products shipments made in other industries	307.1	259.2	328.6
Coverage ratio	92	92	89
INDUSTRY 3546, POWER-DRIVEN HANDTOOLS			
Total value of shipments	2 872.5	2 161.8	1 795.3
Primary products value of shipments	2 097.8	1 609.5	1 457.3
Secondary products value of shipments	377.7	335.6	194.2
Total miscellaneous receipts	397.1	216.6	143.7
Value of resales	376.8	211.4	139.2
Contract receipts	.8	3.3	(D)
Other miscellaneous receipts	19.5	1.9	(D)
Primary products specialization ratio	85	83	88
Value of primary products shipments made in all industries	2 414.5	1 886.9	1 594.8
Value of primary products shipments made in this industry	2 097.8	1 609.5	1 457.3
Value of primary products shipments made in other industries	316.7	277.4	137.5
Coverage ratio	87	85	91
INDUSTRY 3547, ROLLING MILL MACHINERY			
Total value of shipments	602.8	467.8	502.9
Primary products value of shipments	518.7	378.0	352.5
Secondary products value of shipments	30.2	32.3	91.7
Total miscellaneous receipts	53.8	57.5	58.7
Value of resales	29.0	26.3	41.5
Contract receipts	17.5	22.5	7.0
Other miscellaneous receipts	7.3	8.7	10.2
Primary products specialization ratio	94	92	79
Value of primary products shipments made in all industries	544.4	403.0	445.1
Value of primary products shipments made in this industry	518.7	378.0	352.5
Value of primary products shipments made in other industries	25.7	25.0	92.6
Coverage ratio	95	94	79
INDUSTRY 3548, WELDING APPARATUS			
Total value of shipments	2 763.5	2 104.6	(NA)
Primary products value of shipments	2 336.6	1 772.3	(NA)
Secondary products value of shipments	258.0	200.1	(NA)
Total miscellaneous receipts	168.9	132.2	(NA)
Value of resales	147.4	110.7	(NA)
Contract receipts	5.1	5.7	(NA)
Other miscellaneous receipts	16.3	15.8	(NA)
Receipts for repair work	4.5	5.6	(NA)
Other miscellaneous receipts	9.4	9.3	(NA)
Other miscellaneous receipts, n.s.k.	2.4	.9	(NA)
Primary products specialization ratio	90	90	(NA)

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Table 5b. Industry–Product Analysis—Value of Industry and Primary Product Shipments; Specialization and Coverage Ratios: 1992 and Earlier Census Years—Con.

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work (total miscellaneous receipts). Subtotals for total value of shipments show this product pattern for an industry. Primary products specialization ratio is the primary products value of shipments divided by the sum of primary products value of shipments plus secondary products value of shipments. The extent of which an industry's primary products are shipped by establishments classified both in and out of an industry is the coverage ratio and is calculated by dividing the primary products value of shipments by the value of primary products shipments made in all industries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry	1992	1987	1982
INDUSTRY 3548, WELDING APPARATUS—Con.			
Value of primary products shipments made in all industries	2 422.5	1 918.0	(NA)
Value of primary products shipments made in this industry	2 336.6	1 772.3	(NA)
Value of primary products shipments made in other industries	85.8	145.7	(NA)
Coverage ratio	96	92	(NA)
INDUSTRY 3549, METALWORKING MACHINERY, N.E.C.			
Total value of shipments	1 618.3	1 055.0	(NA)
Primary products value of shipments	1 311.2	898.8	(NA)
Secondary products value of shipments	190.3	112.7	(NA)
Total miscellaneous receipts	116.8	43.6	(NA)
Value of resales	57.7	11.8	(NA)
Contract receipts	18.0	16.2	(NA)
Other miscellaneous receipts	41.1	15.6	(NA)
Sales of scrap and refuse	.2	(D)	(NA)
Receipts for installation (or construction) of products of this establishment	7.1	.3	(NA)
Receipts for research and development	2.1	(D)	(NA)
Receipts for repair work	8.1	6.4	(NA)
Other miscellaneous receipts	22.8	8.0	(NA)
Other miscellaneous receipts, n.s.k.	.9	.3	(NA)
Primary products specialization ratio	87	89	(NA)
Value of primary products shipments made in all industries	1 475.0	1 004.1	(NA)
Value of primary products shipments made in this industry	1 311.2	876.7	(NA)
Value of primary products shipments made in other industries	163.8	127.4	(NA)
Coverage ratio	89	87	(NA)

Note: For qualifications of data, see footnotes on table 1a.

Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987

[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. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3541– —	**MACHINE TOOLS, METAL CUTTING TYPES**						
	Total	**(NA)**	**(X)**	**3 053.6**	**(NA)**	**(X)**	**2 585.2**
3541D	Boring machines (excluding machining centers) and drilling machines (excluding machining centers)	(NA)	(X)	151.4	(NA)	(X)	157.0
3541D 00	Boring machines (excluding machining centers) and drilling machines (excluding machining centers)[3]	62	(X)	151.4	56	(X)	157.0
35413	Gear cutting machines	(NA)	(X)	87.4	(NA)	(X)	62.4
35413 00	Gear cutting machines[3]	10	(X)	87.4	10	(X)	62.4
35414	Grinding, polishing, buffing, honing, and lapping machines, except gear-tooth grinding, lapping, polishing, and buffing	(NA)	(X)	376.0	(NA)	(X)	396.1
35414 00	Grinding, polishing, buffing, honing, and lapping machines, except gear-tooth grinding, lapping, polishing, and buffing[3]	108	(X)	376.0	98	(X)	396.1
35415	Lathes (turning machines)	(NA)	(X)	329.3	(NA)	(X)	266.5
35415 00	Lathes (turning machines)[3]	48	(X)	329.3	43	(X)	266.5
35416	Milling machines (excluding machining centers)	(NA)	(X)	221.7	(NA)	(X)	197.2
35416 00	Milling machines (excluding machining centers)[3]	43	(X)	221.7	30	(X)	197.2
3541A	Machining centers (multifunction numerically controlled machines)	(NA)	(X)	454.1	(NA)	(X)	231.7
3541A 00	Machining centers (multifunction numerically controlled machines)[3]	52	(X)	454.1	32	(X)	231.7
3541B	Station type machines	(NA)	(X)	469.0	(NA)	(X)	316.4
3541B 00	Station type machines[3]	25	(X)	469.0	30	(X)	316.4
3541C	Other metal cutting machine tools (except those designed primarily for home workshops, laboratories, garages, etc.)	(NA)	(X)	222.1	(NA)	(X)	189.1
3541C 00	Other metal cutting machine tools (except those designed primarily for home workshops, laboratories, garages, etc.)[3]	109	(X)	222.1	95	(X)	189.1

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[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. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3541– —	**MACHINE TOOLS, METAL CUTTING TYPES—** Con.						
35418	Machine tools designed primarily for home workshops, labs, garages, etc. (metalworking and primarily metalworking)	(NA)	(X)	60.9	(NA)	(X)	97.2
35418 11	Drilling machines thousands	5	(S)	18.6	5	(S)	8.8
35418 31	Grinding and polishing machines, including crankshaft regrinding and valve grinding machines thousands	4	(S)	3.8	13	(S)	22.6
35418 51	Lathes thousands	2	–	(D)	3	(S)	11.0
35418 71	Sawing and cut-off machines thousands	7	(D)	(D)	10	(S)	17.5
35418 91	Other metalworking (or primarily metalworking) types, including automotive cylinder reboring machines thousands	11	*55.7	33.2	14	(S)	30.8
35418 00	Machine tools designed primarily for home workshops, labs, etc. (metalworking and primarily metalworking), n.s.k.	(NA)	(X)	.5	(NA)	(X)	6.6
35419	Parts for metal cutting machine tools (sold separately) and rebuilt metal cutting machine tools	(NA)	(X)	606.2	(NA)	(X)	577.5
35419 11	Parts for metal cutting machine tools, sold separately	175	(X)	428.0	124	(X)	380.3
35419 41	Rebuilt metal cutting machine tools	50	(X)	110.3	(NA)	(X)	174.3
35419 00	Parts for metal cutting machine tools (sold separately) and rebuilt metal cutting machine tools, n.s.k.	(NA)	(X)	67.8	(NA)	(X)	22.9
35410	Machine tools, metal cutting types, n.s.k.	(NA)	(X)	75.4	(NA)	(X)	94.2
35410 00	Machine tools, metal cutting types, n.s.k.[4]	(NA)	(X)	74.9	(NA)	(X)	94.2
35410 02	Machine tools, metal cutting types, n.s.k.[5]	(NA)	(X)	.5	(NA)	(X)	–

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3542– —	**MACHINE TOOLS, METAL FORMING TYPES**				
	Total	**(NA)**	**1 396.7**	**(NA)**	**1 370.3**
35421	Punching and shearing machines (including power and manual) and bending and forming machines (power only)	(NA)	352.7	(NA)	334.4
35421 00	Punching and shearing machines (including power and manual) and bending and forming machines (power only)[3]	87	352.7	94	334.4
35422	Metalworking presses (except forging and die-stamping presses)	(NA)	329.6	(NA)	268.9
35422 00	Metalworking presses (except forging and die-stamping presses)[3]	75	329.6	60	268.9
35423	Other metal forming machine tools, including forging and die-stamping machines (except metalworking presses)	(NA)	317.7	(NA)	307.0
35423 00	Other metal forming machine tools, including forging and die-stamping machines (except metalworking presses)[3]	84	317.7	66	307.0
35424	Parts for metal forming machine tools (sold separately) and rebuilt metal forming machine tools	(NA)	377.9	(NA)	392.9
35424 11	Parts for metal forming machine tools (sold separately)	109	315.7	(NA)	320.1
35424 75	Rebuilt metal forming machine tools	25	38.8	(NA)	48.2
35424 00	Parts for metal forming machine tools (sold separately) and rebuilt metal forming machine tools, n.s.k.	(NA)	23.4	(NA)	24.6
35420	Machine tools, metal forming types, n.s.k.	(NA)	18.8	(NA)	67.3
35420 00	Machine tools, metal forming types, n.s.k.[4]	(NA)	18.8	(NA)	67.3
35420 02	Machine tools, metal forming types, n.s.k.[5]	(NA)	–	(NA)	–
3543– —	**INDUSTRIAL PATTERNS**				
	Total	**(NA)**	**672.3**	**(NA)**	**r558.5**
35430	Industrial patterns, except shoe patterns	(NA)	672.3	(NA)	r558.5
35430 11	Foundry patterns	556	497.2	435	341.5
35430 98	All other industrial patterns (except shoe patterns)	94	82.3	119	83.1
35430 00	Industrial patterns, n.s.k.[4]	(NA)	50.9	(NA)	r83.7
35430 02	Industrial patterns, n.s.k.[5]	(NA)	41.8	(NA)	50.3
3544– —	**SPECIAL DIES, TOOLS, JIGS, AND FIXTURES**				
	Total	**(NA)**	**10 252.2**	**(NA)**	**8 147.1**

See footnotes at end of table.

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Table 6a. **Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987**—Con.

[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. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3544– —	**SPECIAL DIES, TOOLS, JIGS, AND FIXTURES**—Con.				
35441	Special dies and tools, die sets, jigs, and fixtures	(NA)	5 076.3	(NA)	r4 171.7
	Jigs and fixtures, all types:				
	Gauging and checking types:				
35441 13	Less than 1,000 lb weight	343	210.4	285	187.3
35441 15	1,000 lb weight or more	64	47.0	60	47.5
	All other jigs and fixtures (holding, positioning, layout, assembly, etc.):				
35441 17	Less than 1,000 lb weight	440	266.5	401	284.5
35441 18	1,000 lb weight or more	132	233.5	136	168.1
35441 19	Standard catalog components and parts for jigs and fixtures, including drill bushings	54	136.0	44	127.8
	Dies, metalworking only:				
35441 21	Press brake dies	54	35.3	37	31.2
	Forming and drawing dies:				
35441 22	500 lb weight or less	218	140.4	208	103.8
35441 24	501 to 3,000 lb weight	226	150.8	229	r150.7
35441 26	More than 3,000 lb weight	143	303.6	148	311.8
	Stamping dies, including lamination and blanking dies:				
	Progressive-type dies:				
35441 27	High-speed steel	546	462.6	467	296.0
35441 28	Carbide	84	82.0	96	75.1
35441 25	Other	261	188.7	242	157.5
35441 23	All other stamping-type dies (punch, trim, notch, pierce, perforate, etc.)	421	468.2	379	543.0
	Forging dies, including cold forging and heading:				
35441 33	Open die type	50	41.1	42	43.8
35441 35	Closed die type	109	99.0	98	102.2
	Extrusion and wiredrawing and straightening dies:				
35441 43	High-speed steel	49	65.4	30	45.1
35441 45	Carbide	43	36.1	34	34.3
35441 42	Ceramic and ceramic composite	2	.3	1	.3
35441 44	Other	49	73.6	32	56.2
	All other dies:				
35441 46	High-speed steel	94	55.7	74	41.8
35441 47	Carbide	57	62.7	48	52.0
35441 48	Other	93	68.5	100	62.2
	Standard and special components and parts for dies:				
35441 73	Die sets	64	94.3	59	91.3
	Standard punches:				
35441 75	Steel	108	188.7	86	130.1
35441 77	Carbide	43	26.7	24	10.3
35441 78	Other	100	162.7	102	124.5
35441 83	Industrial models and prototypes	352	427.2	217	267.6
35441 89	Other specially designed tooling	430	494.3	275	354.2
35441 00	Special dies and tools, die sets, jigs, and fixtures, n.s.k.	(NA)	454.9	(NA)	271.4
35442	Industrial molds and mold boxes	(NA)	3 744.7	(NA)	2 526.1
	Industrial molds made of metal:				
	Molds for metal or metal carbides (except ingot molds):				
	Die-casting dies:				
35442 03	For low-pressure casting	74	50.3	273	265.9
35442 05	For high-pressure casting	207	283.1		
35442 07	Permanent molds (for gravity casting)	38	31.8	55	36.6
35442 09	Other types	37	31.2		
35442 14	Molds for wax	81	70.2	(NA)	65.3
35442 21	Molds for mineral materials	10	6.2	(NA)	27.6
35442 25	Molds for glass	13	111.7	(NA)	110.0
	Molds for rubber:				
35442 41	Injection- or compression-types	172	183.7	104	104.8
35442 42	Other types	47	54.0	38	42.1
	Molds for plastics:				
35442 51	Injection-type	1 526	2 165.1	1181	1 378.3
35442 55	Compression-type, including matched metal molds	138	130.3	142	114.9
35442 59	All other types, including transfer, plunger, and rotational molds	181	157.7	137	129.1
35442 45	Molds for other materials	73	55.2	51	60.1
35442 47	Mold bases	43	120.0	31	40.5
35442 63	Industrial molds made of materials other than metal	46	62.8	41	48.3
35442 67	Mold boxes or flasks for use with patterns and sand molds in foundries	20	21.6	9	7.1
35442 00	Industrial molds and mold boxes, n.s.k.	(NA)	209.9	(NA)	r95.5
35440	Special dies, tools, jigs, and fixtures, n.s.k.	(NA)	1 431.3	(NA)	r1 449.3
35440 00	Special dies, tools, jigs, and fixtures, n.s.k.[4]	(NA)	1 067.4	(NA)	r1 037.6
35440 02	Special dies, tools, jigs, and fixtures, n.s.k.[5]	(NA)	363.9	(NA)	411.7
3545– —	**MACHINE TOOL ACCESSORIES**				
	Total	**(NA)**	**3 619.4**	**(NA)**	**3 422.0**
35451	Small cutting tools for machine tools and metalworking machinery	(NA)	2 051.8	(NA)	1 881.2
35451 14	Broaches (excluding holders and burnishing bars)	48	92.3	35	83.1
	Twist drills (excluding combined drills, countersinks, and gun drills):				
	Carbon steel and high-speed steel:				
35451 15	Taper shank	14	15.5	(NA)	33.9
35451 21	Straight shank	28	241.5	(NA)	196.9
35451 24	Carbide, solid and tipped (excluding tips and blanks sold separately and masonry drills)	42	98.8	32	50.9
35451 22	Masonry drill bits	12	39.0	14	40.0
35451 25	Gun drills and gun reamers	17	20.1	11	14.0
35451 26	Combination drills and countersinks	23	15.9	14	10.1

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[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. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3545– —	**MACHINE TOOL ACCESSORIES**—Con.				
35451	Small cutting tools for machine tools and metalworking machinery—Con.				
35451 27	Countersinks, including port cutters, etc. (except combined drills-countersinks and pilots for interchangeable pilots)	24	13.7	25	12.2
35451 29	Counterbores, including spot facers, etc. (excluding pilots for interchangeable pilot types)	26	12.0	20	7.8
	Reamers (all types, but excluding gun reamers):				
35451 32	Carbon steel and high-speed steel, including blades sold separately	33	27.4	26	30.9
35451 36	Carbide, solid and tipped (including replaceable blades sold separately) (excluding tips and blanks sold separately)	43	36.1	32	26.9
35451 42	Hobs, all types	6	29.7	5	(D)
35451 47	Gear shaper cutters and gear shaving cutters	12	25.4	9	47.5
	End mills and milling cutters:				
	End mills (excluding inserted blade types and shell mills):				
35451 51	High-speed steel	42	91.2	36	97.4
35451 52	Carbide, solid and tipped (excluding blades sold separately)	52	88.6	37	58.6
	Inserted blade type cutters, all types complete:				
35451 53	Nonindexible	13	8.8	10	7.0
35451 54	Indexible or throwaway insert types	22	27.7	21	25.8
	Milling cutters, not elsewhere classified:				
35451 62	High-speed steel	27	59.5	(NA)	78.6
35451 64	Carbide, solid and tipped (excluding tips and blanks sold separately)	20	9.8		
	Threading tools:				
35451 74	Taps (excluding taps in threading sets and screw plates and inserted chaser types)	22	115.3	(NA)	126.2
35451 73	Dies, with two or more thread-forming edges integral with the body (excluding metalworking dies in product class 35441)	8	12.9	8	19.9
35451 75	Chasers, single edge thread-cutting, circular blade and tangent types for mount in/ on holders, die heads, and tap bodies	9	27.0	9	31.9
35451 87	Thread-rolling dies, including circular, flat, and planetary	12	40.0	10	34.5
35451 89	Other threading tools, including screw plates and threading sets	7	(6)	8	6.4
35451 67	Single and double point tools	43	54.2	(NA)	56.9
35451 72	Circular form tools, including semifinished blanks	26	31.0	16	43.7
	Blanks, tips, and inserts:				
35451 79	Molded blanks and tips (excluding pressed-to-size inserts)	25	92.0	(NA)	95.4
	Inserts, indexible and throwaway types:				
	Carbide:				
35451 83	Precision ground	59	271.6	38	172.9
35451 81	Other carbide	17	130.0	(NA)	(D)
35451 95	Ceramic	9	31.9	(NA)	26.4
35451 96	Other than carbide and ceramic	13	15.7		
	Inserts, other than indexible and throwaway types:				
35451 86	Carbide	19	26.9	14	20.6
35451 97	Ceramic	3	623.7	1	(7)
35451 99	Other than carbide and ceramic	12	18.5	(NA)	7.6
	Other types of cutting tools for machine tools, not elsewhere classified:				
35451 92	Carbon steel (including rotary burrs, rotary files, and spade drills)	12	16.5	24	42.1
35451 94	High-speed steel (including rotary burrs, rotary files, and spade drills)	36	44.5	34	35.1
35451 98	Carbide, solid and tipped (except tips and blanks sold separately) (including rotary burrs, rotary files, spade drills)	60	77.6	52	72.4
35451 00	Small cutting tools for machine tools and metalworking machinery, n.s.k.	(NA)	69.5	(NA)	r108.1
35454	Other attachments and accessories for machine tools and metalworking machinery	(NA)	664.1	(NA)	542.6
	Tool holders:				
35454 12	Turning tool holders, mechanically clamping for inserts and bits (except box tools and screw machine tool holders)	51	83.0	28	70.4
35454 14	Boring bars and heads	29	49.9	33	45.4
35454 17	Drilling, reaming, and tapping chucks	12	76.7	10	39.7
35454 31	Special tooling and attachments for screw and automatic machines (box tools, tool holders, turrets, rollers, etc.)	27	24.1	17	9.6
35454 37	Die heads and tap bodies for chaser-type threading and thread-rolling heads (excluding hand-type die stocks)	9	10.1	8	10.4
35454 38	Other tool holders, including other chucks, drill heads, tool posts, turrets, sleeves, sockets, etc.	38	57.8	37	74.9
	Work holding devices:				
35454 45	Rotary tables and indexing work holders, including numerically controlled	25	46.9	13	27.5
35454 59	Other work holding and positioning devices, including vises, mandrels, feeding fingers and collets, clamps, stops, etc.	75	161.9	71	129.9
	Other attachments and accessories for machine tools and metalworking machinery:				
35454 41	Tracer and tapering attachments, safety devices, centers, dogs, work rests, chutes, etc.	12	14.8	5	3.9
35454 43	Lathe chucks	11	28.4	10	17.7
35454 51	Tool room specialties, including levels, angle plates, parallels, sine bars, V-blocks, flats, etc.	5	4.9	7	5.3
35454 98	Other attachments and accessories	73	92.1	69	93.2
35454 00	Other attachments and accessories for machine tools and metalworking machinery, n.s.k.	(NA)	13.5	(NA)	14.6
35455	Precision measuring tools (inspection, quality control, tool room, and machinists')	(NA)	407.3	(NA)	443.8
35455 11	Comparators (excluding optical)	9	4.9	7	6.1
	Fixed size limit gauges (American Gauge Design Type C58-61):				
35455 13	Fixture-type	34	42.9	25	28.4
35455 15	Thread-type	27	37.7	23	30.4
35455 17	Adjustable size limit gauges	15	21.5	15	21.2
35455 21	Gauge blocks	8	5.8	6	6.0

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[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. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3545– —	**MACHINE TOOL ACCESSORIES**—Con.				
35455	Precision measuring tools (inspection, quality control, tool room, and machinists')—Con.				
35455 61	Dial indicators	7	23.6	8	16.2
35455 65	Micrometers and calipers	7	34.9	6	20.6
35455 71	Pneumatic and electronic gauges (manual and automatic)	16	62.0	12	94.8
35455 73	Coordinate and contour measuring machines (inspection and gauging)	13	75.2	(NA)	56.6
35455 77	Other machinists' precision measuring tools (including dividers, gear checking and surface texture measuring machines)	31	72.3	(NA)	(D)
35455 79	Parts and accessories for machinists' precision measuring tools (sold separately)	14	18.1	(NA)	(D)
35455 00	Precision measuring tools (inspection, quality control, tool room, and machinists'), n.s.k.	(NA)	8.3	(NA)	r21.6
35450	Machine tool accessories, n.s.k.	(NA)	496.2	(NA)	r554.4
35450 00	Machine tool accessories, n.s.k.[4]	(NA)	372.7	(NA)	366.6
35450 02	Machine tool accessories, n.s.k.[5]	(NA)	123.5	(NA)	187.8

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3546– —	**POWER-DRIVEN HANDTOOLS**						
	Total	**(NA)**	**(X)**	**2 414.5**	**(NA)**	**(X)**	**r1 886.9**
35464	Power-driven handtools, battery-powered (cordless)	(NA)	(X)	291.4	(NA)	(X)	(8)
35464 01	Screwdrivers (without 3-jaw chuck) thousands	1	(9)	(9)	(NA)	(10)	(10)
35464 05	Driver/ drills thousands	3	9**2 952.6	999.0	(NA)	(11)	(11)
	Drills:						
35464 09	With integrated battery packs thousands	1	(D)	(12)	(NA)	(13)	(13)
35464 15	With removable battery packs thousands	5	(D)	(12)	(NA)	(13)	(13)
35464 19	Other battery-powered (cordless) handtools thousands	4	(NA)	12172.0	(NA)	(8)	(8)
35464 21	Parts, attachments, and accessories for battery-powered (cordless) handtools (sold separately)	5	(X)	20.4	(NA)	(X)	(8)
35464 00	Power-driven handtools, battery-powered (cordless), n.s.k.	(NA)	(X)	–	(NA)	(X)	(8)
35465	Power-driven handtools, electric (excluding battery-powered)	(NA)	(X)	1 091.4	(NA)	(X)	81 062.7
	Drills:						
35465 02	Armature mounted primarily on sleeve bearings thousands	4	(D)	(14)	(NA)	134 926.6	13132.6
	Armature mounted primarily on other than sleeve bearings:						
35465 05	1/ 4 inch (6.35 mm) chuck size or less[15] thousands	2	(D)	(14)	2	(15)	(15)
35465 07	5/ 16 inch (7.94 mm) to less than 1/ 2 inch (12.70 mm)[15] thousands	8	(NA)	14171.2	6	151 417.0	1556.4
35465 09	1/ 2 inch (12.70 mm) or more thousands	7	(S)	58.1	6	13668.0	1356.2
35465 22	Screwdrivers and nut-runners thousands	6	*392.8	32.3	7	102 601.9	1063.1
35465 21	Hammers, percussion and rotary, without drill chuck thousands	4	(S)	36.4	4	84.7	28.6
35465 23	Hammers - drills, with a drill chuck thousands	5	(16)	(16)	4	(D)	(17)
35465 25	Impact wrenches thousands	7	(S)	15.4	3	(D)	(17)
35465 28	Shears and nibblers thousands	7	*48.3	7.1	5	58.6	7.8
35465 31	Planers thousands	2	166 071.9	1631.8	2	(18)	(18)
	Routers:						
35465 41	Less than 1/ 2 inch collet size (maximum collet capacity) thousands	6	673.5	36.3	(NA)	(18)	(18)
35465 43	1/ 2 inch collet size (maximum collet capacity) or more thousands	5	*197.8	22.2	(NA)	18801.7	1844.0
	Polishers, circular sanders, and grinders (except bench grinders):						
	Right angle polishers, circular sanders, and grinders:						
35465 24	Less than 7 inch wheel drive thousands	5	677.6	41.4	(NA)	765.2	39.5
35465 27	7 inch wheel drive or more thousands	7	411.4	20.8			
35465 29	All other polishers, circular sanders, and grinders (including die grinders, but excluding bench) thousands	5	663.1	19.7	5	641.2	26.6
	Sanders (except circular):						
35465 33	Belt thousands	7	(S)	36.2	7	633.7	30.4
35465 38	Oscillating, reciprocating, vibrating, and random orbit thousands	5	(S)	57.6	6	191 041.9	1927.0
	Saws, circular:						
35465 12	Armature mounted primarily on sleeve bearings thousands	4	(S)	61.8	4	1 565.5	53.7
	Armature mounted primarily on other than sleeve bearings:						
35465 15	7 inch (177.80 mm) blade or less thousands	2					
35465 16	More than 7 inch (177.80 mm) to less than 8 inch (203.20 mm) blade thousands	5	(S)	96.7	(NA)	1 429.0	72.3
35465 17	8 inch (203.20 mm) blade or more thousands	4	(S)	4.2	4	82.1	8.4
	Saws - jig and saber:						
35465 11	Armature mounted on ball bearings thousands	5	(S)	50.8	(NA)	(20)	(20)
35465 13	Armature mounted on other than ball bearings thousands	4			(NA)	(20)	(20)
35465 14	Reciprocating saws thousands	7	672.9	76.9	(NA)	202 129.9	2087.9
35465 37	Chain saws thousands	4	505.6	23.6	4	384.0	17.4
35465 39	Other electric-powered handtools thousands	18	(S)	99.4	18	(S)	1199.1

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[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. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3546– —	**POWER-DRIVEN HANDTOOLS**—Con.						
35465	Power-driven handtools, electric (excluding battery-powered)—Con.						
35465 36	Parts, attachments, and accessories for electric-powered handtools (sold separately)	20	(X)	89.9	21	(X)	205.1
35465 00	Power-driven handtools, electric (excluding battery-powered), n.s.k.	(NA)	(X)	1.5	(NA)	(X)	r6.6
35462	Power-driven handtools, pneumatic, hydraulic, and powder-actuated	(NA)	(X)	634.4	(NA)	(X)	508.5
	Pneumatic:						
35462 38	Drills, screwdrivers, and nut-runners thousands	16	(S)	89.2	12	(S)	81.9
35462 37	Percussion tools (such as runners, riveters, chippers, scalers) thousands	17	(S)	39.1	7	(S)	24.0
35462 41	Impact wrenches thousands	7	(S)	72.7	7	(S)	40.3
	Grinders, polishers, and sanders:						
35462 42	Rotary thousands	12	(S)	60.1	13	(S)	52.9
35462 44	Other thousands	5	*47.1	7.7	4	(S)	7.0
35462 45	Staplers thousands	4	(S)	46.3	(NA)	(S)	(21)
35462 48	Nailers thousands	4	(S)	52.5	(NA)	(S)	(21)
35462 49	Other pneumatic-powered handtools thousands	18	(S)	44.5	20	(S)	21134.5
35462 51	Parts, attachments, and accessories for pneumatic-powered handtools (sold separately)	30	(X)	144.4	18	(X)	113.0
	Hydraulic:						
35462 71	Chain saws, including pole thousands	2	(D)	(D)	1	(S)	(22)
35462 72	Other hydraulic-powered handtools thousands	14	(S)	38.3	7	(S)	22.4
35462 79	Parts, attachments, and accessories for powder-actuated and hydraulic handtools (sold separately)	9	(X)	17.4	7	(X)	14.0
35462 61	Powder-actuated handtools thousands	3	(D)	(D)	3	(S)	228.0
35462 00	Power-driven handtools, pneumatic, hydraulic, and powder-actuated, n.s.k.	(NA)	(X)	1.8	(NA)	(X)	10.7
35463	Power-driven handtools, engine (internal combustion) driven	(NA)	(X)	295.2	(NA)	(X)	213.7
35463 01	Chain saws thousands	4	1 817.1	265.8	4	(S)	162.1
35463 11	Other, including cut-off saws and drills thousands	1					
35463 19	Parts, attachments, and accessories for engine-driven handtools (sold separately)	5	(X)	29.3	(NA)	(X)	48.0
35463 00	Power-driven handtools, engine (internal combustion) driven, n.s.k.	(NA)	(X)	–	(NA)	(X)	3.6
35460	Power-driven handtools, n.s.k.	(NA)	(X)	102.2	(NA)	(X)	101.9
35460 00	Power-driven handtools, n.s.k.[23]	(NA)	(X)	64.3	(NA)	(X)	37.7
35460 02	Power-driven handtools, n.s.k.[24]	(NA)	(X)	37.9	(NA)	(X)	64.2

Product code	Product	1992		1987	
		Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3547– —	**ROLLING MILL MACHINERY**				
	Total	**(NA)**	**544.4**	**(NA)**	**403.0**
35471	Hot rolling mill machinery (including combination hot and cold) (except tube rolling)	(NA)	117.8	(NA)	175.3
35471 11	Blooming and slabbing mill machinery	1			
35471 13	Plate rolling mill machinery, except tin plate machinery	1	55.5	(NA)	31.6
35471 17	Hot strip mill	6			
35471 18	Other hot rolling mill machinery and equipment	8	62.4	10	141.0
35471 00	Hot rolling mill machinery (including combination hot and cold) (except tube rolling), n.s.k.	(NA)	–	(NA)	2.6
35472	Cold rolling mill machinery	(NA)	64.9	(NA)	67.2
35472 21	Tandem roll mills	5	10.9	4	11.3
35472 23	Single stand roll mills	6	36.7	5	8.2
35472 27	Double stand roll mills	1	15.9	(NA)	44.2
35472 28	Other cold rolling mill machinery and equipment	9			
35472 00	Cold rolling mill machinery, n.s.k.	(NA)	1.3	(NA)	3.5
35473	Other rolling mill machinery (including tube mill machinery) and parts for all rolling mill machinery	(NA)	200.5	(NA)	137.3
35473 35	Tube mill machinery	7	26.0	11	21.3
35473 47	Processing lines (including pickling and cleaning, tinning, galvanizing, etc.)	3	(25)	2	(26)
35473 41	Scarfing units	1	(25)	(NA)	(26)
35473 43	Press feed lines	(NA)	–	(NA)	(26)
35473 49	Other rolling mill machinery and equipment, excluding parts	7	2543.7	(NA)	2649.1
35473 51	Machined rolls for rolling mills	17	90.8	13	47.1
35473 52	Parts, excluding rolls, for rolling mill machinery (sold separately)	15	29.2	18	17.2
35473 00	Other rolling mill machinery (including tube mill machinery) and parts for all rolling mill machinery, n.s.k.	(NA)	10.7	(NA)	2.7
35470	Rolling mill machinery, n.s.k.	(NA)	161.3	(NA)	23.2
35470 00	Rolling mill machinery, n.s.k.[4]	(NA)	152.2	(NA)	10.4
35470 02	Rolling mill machinery, n.s.k.[5]	(NA)	9.1	(NA)	12.8

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[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. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3548– —	**WELDING APPARATUS**						
	Total	**(NA)**	**(X)**	**2 422.5**	**(NA)**	**(X)**	**1 918.0**
35481	Arc welding machines, components, and accessories (except electrodes), excluding stud welding equipment	(NA)	(X)	873.9	(NA)	(X)	609.9
	Arc welding machines:						
35481 14	Alternating current transformer arc welders — thousands	10	(S)	44.0	(NA)	(S)	[27]
	Direct current arc welders:						
35481 03	Generators only — thousands	3	*46.8	130.8	3	(S)	[27]
35481 04	Rectifier types, including ac/dc — thousands	11	(S)	185.5	12	(S)	144.1
35481 15	Complete units only — thousands	7	(S)	25.7	(NA)	(S)	[27]220.4
	Components and accessories for arc welding machines (except electrodes):						
35481 07	Automatic and semiautomatic wire drive apparatus and related accessories	11	(X)	59.5	10	(X)	36.5
35481 09	Automatic and semiautomatic welding torches, guns and cables, and related accessories	15	(X)	87.2	12	(X)	57.4
35481 08	Special-purpose automatic welding apparatus	10	(X)	17.2	12	(X)	16.3
35481 11	Circuit welding accessories (including electrode holders, ground clamps, cable connectors, cables sold separately, etc.)	8	(X)	58.3	6	(X)	23.0
35481 12	Positioning and manipulating equipment, including turn rolls, head and tail stock, weld head manipulators, seamers, etc.	12	(X)	29.7	9	(X)	21.1
35481 19	All other components and accessories for arc welding machinery, excluding welding rods and electrodes	20	(X)	68.0	17	(X)	52.0
35481 00	Arc welding machines, components, and accessories (except electrodes), excluding stud welding equipment, n.s.k.	(NA)	(X)	167.9	(NA)	(X)	39.1
35482	Arc welding electrodes, metal	(NA)	(X)	631.7	(NA)	(X)	494.4
	Stick electrodes (including solid, cored, covered, and bare electrodes):						
35482 09	Hard facing — mil lb	7	(S)	19.3	(NA)	(S)	17.4
	Other than hard facing:						
35482 03	Mild steel — mil lb	7	(S)	144.5	8	*270.2	136.6
35482 04	Low alloy steel — mil lb	6			6	(S)	[28]
35482 05	Stainless steel (chromium, 4 percent or more) — mil lb	7	(S)	62.4	7	(S)	[28]32.5
35482 06	Nonferrous — mil lb	7	(S)	25.9	8	(S)	24.1
	Coiled and spooled continuous wire electrodes for automatic arc and inert gas:						
35482 17	Hard facing — mil lb	4	(S)	29.0	(NA)	(S)	48.3
	Other than hard facing:						
	Solid wire:						
35482 11	Mild steel — mil lb	5			6	214.6	102.5
35482 12	Low alloy steel — mil lb	4	(S)	147.8	5	*11.4	13.2
35482 13	Stainless steel (chromium, 4 percent or more) — mil lb	7	4.0	13.1	6	(S)	[29]
35482 14	Nonferrous — mil lb	6	4.7	25.6	3	(S)	[29]40.5
35482 18	Cored wire — mil lb	7	148.4	155.6	(NA)	85.9	67.5
35482 00	Arc welding electrodes, metal, n.s.k.	(NA)	(X)	8.5	(NA)	(X)	11.9
35483	Resistance welders, components, accessories, and electrodes	(NA)	(X)	270.2	(NA)	(X)	303.6
35483 05	Spot and projection welders, single electrode — thousands	13	(S)	33.0	14	(S)	23.1
35483 06	Spot and projection welders, multielectrode — thousands	19	(S)	59.2	21	(S)	123.0
35483 07	Seam welders — thousands	10	(S)	18.2	10	(S)	22.6
35483 08	Other resistance welders, including flash, upset, and butt welders — thousands	14	(S)	24.4	11	(S)	13.1
35483 09	Resistance welder transformers (sold separately) — thousands	10	(S)	30.3	5	(S)	16.2
35483 11	Resistance welder electrodes — mil lb	8	(S)	21.7	4	(S)	13.4
35483 19	Resistance welder components and accessories, including electrode holders, etc.	20	(X)	61.3	21	(X)	55.1
35483 00	Resistance welders, components, accessories, and electrodes, n.s.k.	(NA)	(X)	22.2	(NA)	(X)	37.0
35484	Gas welding and cutting equipment, parts, attachments, and accessories	(NA)	(X)	252.8	(NA)	(X)	205.3
35484 01	Torches (including welding torches and gas air torches) — thousands	15	(S)	37.0	12	(S)	37.7
35484 02	Cutting machines and carriages, stationary and portable — thousands	6	(S)	25.4	8	**2.8	38.4
35484 03	Other gas welding and cutting equipment, excluding pressure containers	7	(X)	49.2	10	(X)	31.9
	Spare parts, accessories, attachments, adaptors, etc., sold separately:						
35484 04	Tips	11	(X)	31.1	9	(X)	24.3
35484 05	Regulators, gas pressure — thousands	10	(S)	46.1	9	(S)	34.8
35484 09	All other	13	(X)	36.7	16	(X)	26.2
35484 00	Gas welding and cutting equipment, parts, attachments, and accessories, n.s.k.	(NA)	(X)	27.2	(NA)	(X)	12.1
35485	Other welding equipment, components, and accessories (excluding arc, resistance, and gas)	(NA)	(X)	242.6	(NA)	(X)	182.6
35485 01	Stud welding equipment — number	6			2	(S)	[30]
35485 03	Friction welding equipment — number	2	(S)	31.2	1	(S)	[30]21.3
35485 04	Plasma welding and cutting equipment — number	16	(S)	115.0	13	(S)	93.9
35485 05	All other welding equipment (excluding laser, electron beam, and ultrasonic equipment)	8	(X)	32.9	12	(X)	14.9
35485 07	Soldering equipment (except hand and ultrasonic) — thousands	5	(S)	23.4	6	(S)	23.4
35485 09	Components and accessories for all other welding equipment, excluding arc, resistance, and gas welding equipment	12	(X)	37.7	9	(X)	21.3

See footnotes at end of table.

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Table 6a. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

[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. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	1992			1987		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3548– —	**WELDING APPARATUS**—Con.						
35485	Other welding equipment, components, and accessories (excluding arc, resistance, and gas)—Con.						
35485 00	Other welding equipment, components, and accessories (excluding arc, resistance, and gas), n.s.k.	(NA)	(X)	2.4	(NA)	(X)	7.7
35480	Welding apparatus, n.s.k.	(NA)	(X)	151.3	(NA)	(X)	122.1
35480 00	Welding apparatus, n.s.k.[31]	(NA)	(X)	127.5	(NA)	(X)	74.6
35480 02	Welding apparatus, n.s.k.[32]	(NA)	(X)	23.8	(NA)	(X)	47.5
3549– —	**METALWORKING MACHINERY, N.E.C.**						
	Total	**(NA)**	**(X)**	**1 475.0**	**(NA)**	**(X)**	**r1 004.1**
35492	Assembly machines	(NA)	(X)	805.8	(NA)	(X)	r505.3
35492 11	Rotary transfer (dial or rotary, trunnion, center column)—number	52	(S)	84.8	31	(S)	54.0
35492 15	In-line transfer, synchronous—number	38	(S)	100.5	26	(S)	37.6
35492 17	In-line transfer, nonsynchronous—number	32	(S)	151.3	21	(S)	103.9
35492 13	Special-purpose and other types—number	107	(S)	427.7	72	(S)	r253.5
35492 18	Parts and attachments for assembly machines (sold separately)	36	(X)	32.2	18	(X)	15.7
35492 00	Assembly machines, n.s.k.	(NA)	(X)	9.3	(NA)	(X)	40.7
35495	Other metalworking machinery (except handheld and ultrasonic)	(NA)	(X)	487.5	(NA)	(X)	336.9
	Machines for weaving, other wire fabricating, and wiredrawing and draw benches:						
35495 01	Draw benches and wiredrawing machines (except dies)	12	(X)	21.1	7	(X)	18.1
35495 02	Wire rope or wire cable making machines	7	(X)	13.3	6	(X)	15.3
35495 03	Other machines for working wire	25	(X)	61.7	12	(X)	55.6
	Coil handling equipment (conversion or straightening):						
35495 43	Cut-to-length lines	17	(X)	47.4	12	(X)	56.9
35495 45	Slitting lines	12	(X)	41.6	6	(X)	20.8
35495 92	Other metalworking machinery	75	(X)	208.7	48	(X)	124.6
35495 95	Parts and attachments for other metalworking machinery (sold separately)	40	(X)	80.5	15	(X)	23.1
35495 00	Other metalworking machinery (except handheld and ultrasonic), n.s.k.	(NA)	(X)	13.1	(NA)	(X)	22.5
35490	Metalworking machinery, n.e.c., n.s.k.	(NA)	(X)	181.7	(NA)	(X)	161.8
35490 00	Metalworking machinery, n.e.c., n.s.k.[33]	(NA)	(X)	148.9	(NA)	(X)	137.4
35490 02	Metalworking machinery, n.e.c., n.s.k.[34]	(NA)	(X)	32.8	(NA)	(X)	24.4

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which 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: *10 to 19 percent estimated; **20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).
[3]Additional detail is collected for this product in the Current Industrial Reports. For the survey number and title, see appendix C, part 3.
[4]Typically for establishments with 5 employees or more.
[5]Typically for establishments with less than 5 employees.
[6]For 1992, product code 35451 89 is included with product code 35451 97 to avoid disclosing data for individual companies.
[7]For 1987, product codes 35451 97 and 35451 99 were combined to avoid disclosing data for individual companies.
[8]For 1987, product class 35464 was not collected separately; battery-powered (cordless) handtools were included in product class 35465.
[9]For 1992, product code 35464 01 is combined with product code 35464 05 to avoid disclosing data for individual companies.
[10]For 1987, product code 35464 01 was included with product code 35465 22.
[11]For 1987, product code 35464 05 was included with product code 35465 39.
[12]For 1992, product codes 35464 09 and 35464 15 are included with product code 35464 19 to avoid disclosing data for individual companies.
[13]For 1987, product codes 35464 09 and 35464 15 were included with product codes 35465 02, 35465 05, 35465 07, and 35465 09.
[14]For 1992, product codes 35465 02, 35465 05, and 35465 07 are combined to avoid disclosing data for individual companies.
[15]For 1987, product codes 35465 05 and 35465 07 were combined to avoid disclosing data for individual companies.
[16]For 1992, product code 35465 23 is included with product code 35465 31 to avoid disclosing data for individual companies.
[17]For 1987, product codes 35465 23 and 35465 25 were included with product code 35465 39 to avoid disclosing data for individual companies.
[18]For 1987, product codes 35465 31, 35465 41, and 35465 43 were combined to avoid disclosing data for individual companies.
[19]For 1987, product code 35465 38 excluded random orbit sanders (except circular) which were included in product code 35465 39.
[20]For 1987, product codes 35465 11, 35465 13, and 35465 14 were combined to avoid disclosing data for individual companies.
[21]For 1987, product codes 35462 45 and 35462 48 were not collected separately.
[22]For 1987, product code 35462 71 was included with product code 35462 61 to avoid disclosing data for individual companies.
[23]Typically for establishments with 15 employees or more.
[24]Typically for establishments with less than 15 employees.
[25]For 1992, product codes are combined to avoid disclosing data for individual companies.
[26]For 1987, product codes were combined to avoid disclosing data for individual companies and were revised for 1992. See appendix C, parts 1 and 2 for comparability.
[27]For 1987, product codes 35481 14 and 35481 03 were included with product code 35481 15 to avoid disclosing data for individual companies.
[28]For 1987. product codes 35482 04 and 35482 05 were combined to avoid disclosing data for individual companies.
[29]For 1987, product codes 35482 13 and 35482 14 were combined to avoid disclosing data for individual companies.
[30]For 1987, product codes 35485 01 and 35485 03 were combined to avoid disclosing data for individual companies.
[31]Typically for establishments with 20 employees or more.
[32]Typically for establishments with less than 20 employees.
[33]Typically for establishments with 10 employees or more.
[34]Typically for establishments with less than 10 employees.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
35413, GEAR CUTTING MACHINES		
United States	**87.4**	**62.4**
35414, GRINDING, POLISHING, BUFFING, HONING, AND LAPPING MACHINES, EXCEPT GEAR-TOOTH GRINDING, LAPPING, POLISHING, AND BUFFING		
United States	**376.0**	**396.1**
California	2.5	(NA)
Illinois	35.8	43.8
Indiana	4.6	(NA)
Massachusetts	24.2	(NA)
Michigan	79.5	70.0
New York	6.1	8.2
Ohio	47.0	44.6
Wisconsin	9.0	(NA)
35415, LATHES (TURNING MACHINES)		
United States	**329.3**	**266.5**
California	8.3	(NA)
Michigan	31.4	20.2
Ohio	64.4	106.2
35416, MILLING MACHINES (EXCLUDING MACHINING CENTERS)		
United States	**221.7**	**197.2**
Michigan	4.8	11.9
35418, MACHINE TOOLS DESIGNED PRIMARILY FOR HOME WORKSHOPS, LABS, GARAGES, ETC. (METALWORKING AND PRIMARILY METALWORKING)		
United States	**60.9**	**97.2**
Michigan	4.1	4.8
Wisconsin	18.0	(NA)
35419, PARTS FOR METAL CUTTING MACHINE TOOLS (SOLD SEPARATELY) AND REBUILT METAL CUTTING MACHINE TOOLS		
United States	**606.2**	**577.5**
California	11.8	6.1
Connecticut	35.4	37.9
Illinois	42.3	44.6
Indiana	9.4	17.2
Kentucky	2.3	(NA)
Massachusetts	6.6	20.3
Michigan	92.3	88.1
Minnesota	8.0	7.4
Missouri	3.8	(NA)
New York	65.6	60.4
Ohio	124.9	138.4
Oregon	4.2	(NA)
Pennsylvania	30.3	23.6
Tennessee	4.8	2.2
Wisconsin	101.8	35.8
3541A, MACHINING CENTERS (MULTIFUNCTION NUMERICALLY CONTROLLED MACHINES)		
United States	**454.1**	**231.7**
Illinois	10.0	(NA)
Michigan	36.4	(NA)
Minnesota	4.2	(NA)
3541B, STATION TYPE MACHINES		
United States	**469.0**	**316.4**
Michigan	321.1	183.8
3541C, OTHER METAL CUTTING MACHINE TOOLS (EXCEPT THOSE DESIGNED PRIMARILY FOR HOME WORKSHOPS, LABORATORIES, GARAGES, ETC.)		
United States	**222.1**	**189.1**
California	12.5	13.0
Connecticut	4.9	5.6
Illinois	38.0	23.6
Michigan	74.7	45.4
Ohio	23.9	34.3
Wisconsin	5.9	14.7
3541D, BORING MACHINES (EXCLUDING MACHINING CENTERS) AND DRILLING MACHINES (EXCLUDING MACHINING CENTERS)		
United States	**151.4**	**157.0**
Illinois	5.6	19.3
Michigan	79.2	76.2
New York	2.1	(NA)
Ohio	9.3	4.9
Wisconsin	20.0	15.3
35421, PUNCHING AND SHEARING MACHINES (INCLUDING POWER AND MANUAL) AND BENDING AND FORMING MACHINES (POWER ONLY)		
United States	**352.7**	**334.4**
California	56.4	51.0
Illinois	59.4	73.6
Minnesota	10.0	4.5
Missouri	8.0	(NA)
New York	30.0	(NA)
Ohio	51.6	62.9
35422, METALWORKING PRESSES (EXCEPT FORGING AND DIE-STAMPING PRESSES)		
United States	**329.6**	**268.9**
California	3.8	(NA)
Michigan	26.9	37.2
New York	19.4	(NA)
Ohio	68.1	58.1
Pennsylvania	20.2	21.9
35423, OTHER METAL FORMING MACHINE TOOLS, INCLUDING FORGING AND DIE-STAMPING MACHINES (EXCEPT METALWORKING PRESSES)		
United States	**317.7**	**307.0**
California	15.0	(NA)
Illinois	28.6	46.3
Michigan	41.7	56.4
New York	24.8	(NA)
Ohio	106.7	125.8
35424, PARTS FOR METAL FORMING MACHINE TOOLS (SOLD SEPARATELY) AND REBUILT METAL FORMING MACHINE TOOLS		
United States	**377.9**	**392.9**
California	17.1	14.8
Connecticut	3.4	12.4
Illinois	60.0	80.6
Indiana	3.8	7.5
Massachusetts	5.4	7.5
Michigan	48.4	58.6
Ohio	160.0	102.4
Pennsylvania	27.2	10.8
35441, SPECIAL DIES AND TOOLS, DIE SETS, JIGS, AND FIXTURES		
United States	**5 076.3**	**4 171.7**
Alabama	27.0	23.8
Arizona	28.7	14.6
Arkansas	28.1	12.8
California	178.5	247.0
Colorado	16.1	13.6
Connecticut	119.3	82.3
Florida	45.1	19.5
Georgia	42.5	21.9
Illinois	399.3	280.3
Indiana	251.2	190.8
Iowa	32.2	26.6
Kansas	15.0	5.2
Kentucky	39.4	25.8
Maine	5.9	7.1
Maryland	7.5	10.0
Massachusetts	57.5	57.5
Michigan	1 676.0	1 541.7
Minnesota	117.3	64.9
Mississippi	8.9	8.1
Missouri	93.1	57.6

See footnotes at end of table.

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Table 6b. **Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987**—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
35441, SPECIAL DIES AND TOOLS, DIE SETS, JIGS, AND FIXTURES—Con.		
Nebraska	3.4	3.8
New Hampshire	6.0	2.8
New Jersey	64.7	56.7
New York	224.5	158.1
North Carolina	31.2	19.1
Ohio	711.3	650.3
Oklahoma	8.0	4.3
Oregon	7.5	2.5
Pennsylvania	396.4	331.9
Rhode Island	15.3	10.4
South Carolina	19.1	10.7
Tennessee	98.1	58.4
Texas	36.2	26.6
Vermont	4.9	(NA)
Virginia	31.2	4.5
Washington	7.9	3.7
Wisconsin	214.8	153.1
35442, INDUSTRIAL MOLDS AND MOLD BOXES		
United States	**3 744.7**	**2 526.1**
Alabama	28.1	19.0
Arizona	30.6	14.1
Arkansas	7.0	5.0
California	242.6	213.8
Colorado	24.2	12.3
Connecticut	74.1	53.2
Florida	54.8	35.8
Georgia	9.0	16.5
Illinois	417.3	290.3
Indiana	179.6	121.0
Iowa	24.3	7.0
Kansas	11.1	6.9
Kentucky	26.2	9.9
Maine	4.0	2.9
Maryland	3.9	(NA)
Massachusetts	98.8	73.9
Michigan	791.6	514.2
Minnesota	118.5	79.7
Mississippi	9.6	2.1
Missouri	107.0	56.1
Nebraska	5.4	2.3
New Hampshire	19.6	10.3
New Jersey	143.4	125.7
New York	119.7	65.1
North Carolina	40.8	22.3
Ohio	460.0	343.2
Oklahoma	3.4	(NA)
Oregon	30.4	6.9
Pennsylvania	297.4	188.2
Rhode Island	6.0	5.4
South Carolina	13.3	10.9
Tennessee	37.8	11.4
Texas	44.3	21.5
Utah	4.7	2.2
Vermont	2.4	3.5
Virginia	10.6	6.2
Washington	26.5	12.4
Wisconsin	207.9	145.6
35451, SMALL CUTTING TOOLS FOR MACHINE TOOLS AND METALWORKING MACHINERY		
United States	**2 051.8**	**1 881.2**
Arizona	5.1	4.9
California	94.7	61.8
Connecticut	48.5	46.2
Florida	22.8	18.3
Illinois	255.6	176.7
Indiana	39.0	31.3
Kentucky	13.3	9.3
Massachusetts	93.7	87.1
Michigan	335.8	362.7
Minnesota	20.3	(NA)
Missouri	12.7	(NA)
New Hampshire	10.3	(NA)
New Jersey	22.0	49.8
New York	41.5	43.0
North Carolina	75.1	74.6
Ohio	313.5	304.1
Pennsylvania	127.0	121.1
Rhode Island	10.1	15.6
South Carolina	126.5	125.6
Tennessee	78.0	56.5
Texas	28.1	18.8
Vermont	34.4	49.3
Wisconsin	87.1	81.5
35454, OTHER ATTACHMENTS AND ACCESSORIES FOR MACHINE TOOLS AND METALWORKING MACHINERY		
United States	**664.1**	**542.6**
California	11.8	15.5
Connecticut	20.5	50.3
Illinois	53.7	26.9
Indiana	16.7	11.7
Kentucky	2.6	(NA)
Massachusetts	17.8	16.9
Michigan	162.9	110.4
Missouri	31.7	(NA)
New Jersey	7.6	11.7
New York	34.1	35.1
Ohio	90.3	92.5
Pennsylvania	19.2	12.5
Tennessee	10.7	(NA)
Texas	27.5	(NA)
Vermont	2.5	(NA)
Wisconsin	19.8	24.9
35455, PRECISION MEASURING TOOLS (INSPECTION, QUALITY CONTROL, TOOL ROOM, AND MACHINISTS')		
United States	**407.3**	**443.8**
California	17.6	11.9
Connecticut	15.3	16.7
Illinois	15.7	11.3
Indiana	3.2	5.8
Michigan	97.1	98.2
New York	34.4	68.9
Ohio	70.1	74.2
35462, POWER-DRIVEN HANDTOOLS, PNEUMATIC, HYDRAULIC, AND POWDER-ACTUATED		
United States	**634.4**	**508.5**
California	21.8	22.0
Illinois	42.4	(NA)
Michigan	7.6	(NA)
New York	75.6	63.3
Ohio	149.2	125.1
35463, POWER-DRIVEN HANDTOOLS, ENGINE (INTERNAL COMBUSTION) DRIVEN		
United States	**295.2**	**213.7**
35464, POWER-DRIVEN HANDTOOLS, BATTERY-POWERED (CORDLESS)		
United States	**291.4**	**(NA)**
35465, POWER-DRIVEN HANDTOOLS, ELECTRIC (EXCLUDING BATTERY-POWERED)		
United States	**1 091.4**	**(NA)**
Illinois	9.0	(NA)
Ohio	19.8	(NA)
Pennsylvania	13.8	(NA)
Texas	10.9	(NA)
35471, HOT ROLLING MILL MACHINERY (INCLUDING COMBINATION HOT AND COLD) (EXCEPT TUBE ROLLING)		
United States	**117.8**	**175.3**
Ohio	5.7	(NA)
35472, COLD ROLLING MILL MACHINERY		
United States	**64.9**	**67.2**
Ohio	12.2	7.7
35473, OTHER ROLLING MILL MACHINERY (INCLUDING TUBE MILL MACHINERY) AND PARTS FOR ALL ROLLING MILL MACHINERY		
United States	**200.5**	**137.3**
Illinois	16.8	9.6
Ohio	93.9	65.8
Pennsylvania	35.5	15.9

See footnotes at end of table.

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Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1992 and 1987—Con.

[Million dollars. Product classes shown are those where the data are geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by kind" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1992. For meaning of abbreviations and symbols, see introductory text]

Product class and geographic area	1992 value of product shipments	1987 value of product shipments
35481, ARC WELDING MACHINES, COMPONENTS, AND ACCESSORIES (EXCEPT ELECTRODES), EXCLUDING STUD WELDING EQUIPMENT		
United States	**873.9**	**609.9**
California	57.7	33.1
Illinois	30.3	33.5
Missouri	16.1	10.7
North Carolina	10.1	(NA)
35482, ARC WELDING ELECTRODES, METAL		
United States	**631.7**	**494.4**
Michigan	21.9	(NA)
35483, RESISTANCE WELDERS, COMPONENTS, ACCESSORIES, AND ELECTRODES		
United States	**270.2**	**303.6**
Illinois	10.3	16.8
Michigan	174.0	216.5
Ohio	38.9	29.6
Wisconsin	19.4	(NA)
35484, GAS WELDING AND CUTTING EQUIPMENT, PARTS, ATTACHMENTS, AND ACCESSORIES		
United States	**252.8**	**205.3**
California	7.4	5.5
Florida	16.3	(NA)
Pennsylvania	10.1	11.1
35485, OTHER WELDING EQUIPMENT, COMPONENTS, AND ACCESSORIES (EXCLUDING ARC, RESISTANCE, AND GAS)		
United States	**242.6**	**182.6**
California	25.6	4.8
Ohio	26.6	22.4
35492, ASSEMBLY MACHINES		
United States	**805.8**	**505.3**
California	11.8	4.8
Connecticut	33.2	36.0
Illinois	51.9	43.8
Indiana	13.8	25.0
Massachusetts	3.9	10.1
Michigan	347.3	228.3
New York	36.1	35.7
North Carolina	3.0	(NA)
Ohio	85.5	40.1
Pennsylvania	29.6	20.8
35495, OTHER METALWORKING MACHINERY (EXCEPT HANDHELD AND ULTRASONIC)		
United States	**487.5**	**336.9**
California	16.8	19.1
Connecticut	19.0	3.0
Illinois	68.8	52.5
Indiana	20.1	(NA)
Massachusetts	15.8	9.1
Michigan	54.7	32.7
New Jersey	19.6	23.3
New York	19.8	10.0
Ohio	86.0	31.8
Oklahoma	14.0	(NA)
Wisconsin	31.2	(NA)

Note: For qualifications of data, see footnotes on table 6a.

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3541-	**Machine tools, metal cutting types**	**3 053.6**	**2 837.9**	**3 249.4**	**3 171.7**	**2 611.5**	**2 585.2**	**4 154.7**	**2 560.5**
3541D	Boring machines (excluding machining centers) and drilling machines (excluding machining centers)	151.4	136.1	184.9	176.5	127.9	157.0	266.0	202.4
35413	Gear cutting machines	87.4	104.8	102.6	94.5	45.7	62.4	87.3	67.1
35414	Grinding, polishing, buffing, honing, and lapping machines, except gear-tooth grinding, lapping, polishing, and buffing	376.0	405.4	494.8	452.4	354.7	396.1	515.3	288.3
35415	Lathes (turning machines)	329.3	282.2	326.7	313.3	277.2	266.5	523.6	455.9
35416	Milling machines (excluding machining centers)	221.7	225.7	203.1	206.8	168.2	197.2	264.5	167.8
3541A	Machining centers (multifunction numerically controlled machines)	454.1	416.7	454.6	440.2	346.2	231.7	365.7	
3541B	Station type machines	469.0	355.2	375.3	459.3	248.4	316.4	735.4	647.3
3541C	Other metal cutting machine tools (except those designed primarily for home workshops, laboratories, garages, etc.)	222.1	172.6	183.7	198.6	181.7	189.1	250.6	
35418	Machine tools designed primarily for home workshops, labs, garages, etc. (metalworking and primarily metalworking)	60.9	98.6	130.5	135.7	104.5	97.2	85.7	66.3
35419	Parts for metal cutting machine tools (sold separately) and rebuilt metal cutting machine tools	606.2	609.4	757.6	686.1	666.4	577.5	891.9	502.1
35410	Machine tools, metal cutting types, n.s.k.	75.4	31.1	35.6	8.3	90.7	94.2	168.7	163.3
3542-	**Machine tools, metal forming types**	**1 396.7**	**1 452.9**	**1 556.8**	**1 684.9**	**1 702.7**	**1 370.3**	**1 383.9**	**1 114.7**
35421	Punching and shearing machines (including power and manual) and bending and forming machines (power only)	352.7	385.3	406.3	416.9	391.3	334.4	317.3	280.1
35422	Metalworking presses (except forging and die-stamping presses)	329.6	316.7	316.5	383.1	391.9	268.9	369.2	282.6
35423	Other metal forming machine tools, including forging and die-stamping machines (except metalworking presses)	317.7	(D)	327.0	344.9	386.9	307.0	217.0	171.7
35424	Parts for metal forming machine tools (sold separately) and rebuilt metal forming machine tools	377.9	(D)	450.8	487.0	476.4	392.9	380.0	295.5
35420	Machine tools, metal forming types, n.s.k.	18.8	31.6	56.1	53.0	56.1	67.3	100.5	85.0
3543-	**Industrial patterns**	**672.3**	**561.0**	**624.0**	**668.6**	**713.5**	**558.5**	**561.5**	**411.9**
35430	Industrial patterns, except shoe patterns	672.3	561.0	624.0	668.6	713.5	558.5	561.5	411.9
3544-	**Special dies, tools, jigs, and fixtures**	**10 252.2**	**9 691.6**	**10 054.6**	**9 911.0**	**8 789.5**	**8 147.1**	**6 099.3**	**4 450.2**
35441	Special dies and tools, die sets, jigs, and fixtures	5 076.3	5 097.1	5 522.6	5 426.5	4 533.7	4 171.7	3 425.9	2 578.0
35442	Industrial molds and mold boxes	3 744.7	3 015.4	2 932.7	2 983.8	2 929.0	2 526.1	1 800.6	1 040.0
35440	Special dies, tools, jigs, and fixtures, n.s.k.	1 431.3	1 579.1	1 599.3	1 500.7	1 326.8	1 449.3	872.8	832.2

See footnotes at end of table.

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Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1992 and Earlier Years—Con.

[Million dollars. For meaning of abbreviations and symbols, see introductory text]

Product code	Product class	1992	1991[1]	1990[1]	1989[1]	1988[1]	1987	1982	1977
3545-	**Machine tool accessories**	**3 619.4**	**4 054.0**	**4 245.8**	**4 123.4**	**3 823.0**	**3 422.0**	**3 069.1**	**2 238.9**
35451	Small cutting tools for machine tools and metalworking machinery	2 051.8	2 214.6	2 252.9	2 265.1	2 120.4	1 881.2	1 755.7	1 376.4
35454	Other attachments and accessories for machine tools and metalworking machinery	664.1	708.3	637.4	661.0	596.2	542.6	593.6	430.9
35455	Precision measuring tools (inspection, quality control, tool room, and machinists')	407.3	445.4	603.9	494.8	559.4	443.8	402.7	208.2
35450	Machine tool accessories, n.s.k.	496.2	685.7	751.6	702.5	547.1	554.4	317.1	223.5
3546-	**Power-driven handtools**	**2 414.5**	**2 238.5**	**2 365.4**	**2 281.3**	**2 155.3**	**1 886.9**	**1 594.8**	**1 496.5**
35462	Power-driven handtools, pneumatic, hydraulic, and powder-actuated	634.4	535.0	593.4	579.1	542.1	508.5	382.4	371.1
35463	Power-driven handtools, engine (internal combustion) driven	295.2	274.4	306.0	290.7	235.7	213.7	326.5	347.1
35464	Power-driven handtools, battery-powered (cordless)	291.4	1 302.8	1 323.8	1 279.5	1 282.5	1 062.7	829.9	748.7
35465	Power-driven handtools, electric (excluding battery-powered)	1 091.4							
35460	Power-driven handtools, n.s.k.	102.2	126.3	142.1	132.0	95.0	101.9	56.0	29.6
3547-	**Rolling mill machinery**	**544.4**	**440.4**	**455.3**	**547.8**	**485.8**	**403.0**	**445.1**	**361.0**
35471	Hot rolling mill machinery (including combination hot and cold) (except tube rolling)	117.8	121.3	142.9	(D)	260.6	175.3	180.5	147.0
35472	Cold rolling mill machinery	64.9	129.8	122.1	(D)	84.2	67.2	65.1	74.9
35473	Other rolling mill machinery (including tube mill machinery) and parts for all rolling mill machinery	200.5	154.7	160.7	171.5	117.7	137.3	188.2	120.8
35470	Rolling mill machinery, n.s.k.	161.3	34.6	29.6	37.1	23.3	23.2	11.4	18.3
3548-	**Welding apparatus**	**2 422.5**	**2 434.3**	**2 474.8**	**2 297.5**	**2 263.3**	**1 918.0**	**1 606.6**	**(NA)**
35481	Arc welding machines, components, and accessories (except electrodes), excluding stud welding equipment	873.9	891.6	947.1	842.5	786.8	609.9	511.6	407.8
35482	Arc welding electrodes, metal	631.7	691.5	680.1	662.9	604.0	494.4	469.6	447.6
35483	Resistance welders, components, accessories, and electrodes	270.2	309.2	300.5	277.7	279.7	303.6	187.8	136.9
35484	Gas welding and cutting equipment, parts, attachments, and accessories	252.8	191.3	182.4	153.1	262.8	205.3	226.6	(NA)
35485	Other welding equipment, components, and accessories (excluding arc, resistance, and gas)	242.6	245.4	253.6	245.4	209.1	182.6	148.4	(NA)
35480	Welding apparatus, n.s.k.	151.3	105.3	111.1	115.9	120.9	122.1	62.7	(NA)
3549-	**Metalworking machinery, n.e.c.**	**1 475.0**	**1 236.0**	**1 287.7**	**1 415.8**	**1 094.7**	**1 004.1**	**780.2**	**(NA)**
35492	Assembly machines	805.8	639.9	619.6	688.6	556.7	505.3	367.6	128.4
35495	Other metalworking machinery (except handheld and ultrasonic)	487.5	476.0	517.9	518.3	376.3	336.9	313.0	(NA)
35490	Metalworking machinery, n.e.c., n.s.k.	181.7	120.1	150.2	208.9	161.7	161.8	99.6	(NA)

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1992 and 1987

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3541, MACHINE TOOLS, METAL CUTTING TYPES		
	Materials, ingredients, containers, and supplies	**1 414.7**	**1 151.4**
	Fluid power products (hydraulic and pneumatic):		
359412	Pumps, motors, and hydrostatic transmissions	33.1	7.3
359301	Cylinders and rotary actuators	15.1	3.4
356921	Filters	4.5	2.1
349261	Hose or tube fittings and assemblies	11.2	3.4
349271	Valves	13.3	10.3
	Fabricated metal products (except forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	18.2	8.9
340078	Other fabricated metal products, except fluid power products	65.7	(1)
	Forgings:		
346200	Iron and steel	8.4	2.7
346300	Nonferrous	.6	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	117.4	55.3
336005	Aluminum and aluminum-base alloy	6.6	2.9
336003	Other nonferrous	1.7	1.8
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	39.4	
331022	Sheet and strip	18.2	
331071	Structural shapes	10.4	55.9
331091	All other	6.2	
335001	Aluminum and aluminum-base alloy	8.4	3.7
335091	Other nonferrous	4.2	.5
	Electric motors and generators:		
	Fractional horsepower electric motors and generators (under 1 hp):		
362110	Timing motors, synchronous and subsynchronous	20.7	22.6
362115	Other fractional horsepower electric motors (under 1 hp)	12.6	9.5
362120	Integral horsepower motors and generators (1 hp or more)	19.7	24.5
360101	Electrical transmission, distribution, and control equipment	37.2	24.2
362001	Electrical industrial capacitors, resistors, rheostats, and coil windings	13.4	11.1
362520	Numerical controls for metalworking machinery (except programmable)	46.5	35.6
362521	Programmable controllers for metalworking machinery	67.7	28.7
	Bearings (mounted or unmounted):		
356218	Ball	18.6	12.8
356201	Roller	7.3	4.1
356601	Speed changers, gears, and industrial high-speed drives	40.5	3.7
244021	Wood boxes, pallets, skids, and containers	5.9	(1)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3541, MACHINE TOOLS, METAL CUTTING TYPES—Con.		
354501	Cutting tools for machine tools	23.0	13.9
970099	All other materials and components, parts, containers, and supplies	295.5	[1]415.7
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	423.5	386.8
	INDUSTRY 3542, MACHINE TOOLS, METAL FORMING TYPES		
	Materials, ingredients, containers, and supplies	**593.7**	**542.9**
	Fluid power products (hydraulic and pneumatic):		
359412	Pumps, motors, and hydrostatic transmissions	17.6	7.9
359301	Cylinders and rotary actuators	8.2	9.3
356921	Filters	2.2	.2
349261	Hose or tube fittings and assemblies	3.2	4.3
349271	Valves	8.9	5.1
	Fabricated metal products (except forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	11.4	5.8
340078	Other fabricated metal products, except fluid power products	25.0	(1)
	Forgings:		
346200	Iron and steel	10.5	5.4
346300	Nonferrous	.4	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	29.4	24.0
336005	Aluminum and aluminum-base alloy	4.0	.8
336003	Other nonferrous	.4	2.0
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	75.8	
331022	Sheet and strip	7.8	
331071	Structural shapes	19.1	49.3
331091	All other	16.0	
335001	Aluminum and aluminum-base alloy	1.3	4.3
335091	Other nonferrous	4.8	2.0
	Electric motors and generators:		
	Fractional horsepower electric motors and generators (under 1 hp):		
362110	Timing motors, synchronous and subsynchronous	1.4	3.4
362115	Other fractional horsepower electric motors (under 1 hp)	.5	.5
362120	Integral horsepower motors and generators (1 hp or more)	14.9	9.1
360101	Electrical transmission, distribution, and control equipment	16.3	9.5
362001	Electrical industrial capacitors, resistors, rheostats, and coil windings	4.0	6.1
362520	Numerical controls for metalworking machinery (except programmable)	3.7	1.7
362521	Programmable controllers for metalworking machinery	22.2	10.5
	Bearings (mounted or unmounted):		
356218	Ball	4.3	4.2
356201	Roller	2.9	4.7
356601	Speed changers, gears, and industrial high-speed drives	6.9	4.8
244021	Wood boxes, pallets, skids, and containers	2.8	(1)
354501	Cutting tools for machine tools	16.6	6.1
970099	All other materials and components, parts, containers, and supplies	141.6	118.3
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	109.4	243.6
	INDUSTRY 3543, INDUSTRIAL PATTERNS		
	Materials, ingredients, containers, and supplies	**99.4**	**91.4**
340091	Fabricated metal products, except forgings	2.4	(1)
346000	Forgings	(Z)	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	8.9	6.4
336005	Aluminum and aluminum-base alloy	4.4	2.0
336003	Other nonferrous	1.1	.2
	Shapes and forms (except castings, forgings, and fabricated metal products):		
331002	Steel	.8	1.3
335001	Aluminum and aluminum-base alloy	1.1	1.1
335091	Other nonferrous	.1	(1)
242101	Rough and dressed lumber	3.0	1.5
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	1.1	.8
970099	All other materials and components, parts, containers, and supplies	27.1	[1]20.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	49.4	57.6
	INDUSTRY 3544, SPECIAL DIES, TOOLS, JIGS, AND FIXTURES		
	Materials, ingredients, containers, and supplies	**1 932.1**	**1 638.1**
	Fabricated metal products (except forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	39.7	24.2
340098	Other fabricated metal products	95.6	(1)
346000	Forgings	13.1	[3]2.9
	Castings (rough and semifinished):		
332001	Iron and steel	85.8	28.7
336010	Nonferrous	19.7	41.6

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3544, SPECIAL DIES, TOOLS, JIGS, AND FIXTURES—Con.		
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	261.3	
331022	Sheet and strip	35.9	324.3
331034	All other	38.4	
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	25.6	13.8
335011	All other	12.3	8.1
335091	Other nonferrous	11.7	10.4
	Metal powders:		
339916	Tungsten carbide	20.4	14.7
339919	All other	2.2	3.0
190074	Iron and steel scrap (excluding home scrap)	2.0	15.0
329903	Industrial diamonds	8.7	4.6
360101	Electrical transmission, distribution, and control equipment	10.6	17.2
329101	Grinding wheels and other abrasive products, except industrial diamonds	19.0	12.4
190090	Fluid power products, including pumps, motors, valves, cylinders, rotary actuators, etc. (hydraulic and pneumatic)	23.7	8.6
280020	Ceramic raw materials, including powders, chemicals, and fibers (excluding refractory uses)	3.7	1.3
320601	Ceramic and ceramic composite parts, components, and accessories	1.3	.5
970099	All other materials and components, parts, containers, and supplies	345.6	[1]307.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	855.8	799.4
	INDUSTRY 3545, MACHINE TOOL ACCESSORIES		
	Materials, ingredients, containers, and supplies	**844.4**	**800.6**
	Fabricated metal products (except forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	20.4	5.9
340098	Other fabricated metal products	29.0	(1)
346000	Forgings	1.6	[3]1.5
	Castings (rough and semifinished):		
332001	Iron and steel	9.7	11.5
336010	Nonferrous	2.3	1.6
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	170.4	
331022	Sheet and strip	17.8	195.1
331034	All other	12.8	
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	2.7	.7
335011	All other	1.7	2.3
335091	Other nonferrous	3.2	(D)
	Metal powders:		
339916	Tungsten carbide	123.9	100.5
339919	All other	4.3	7.1
190074	Iron and steel scrap (excluding home scrap)	.1	1.8
329903	Industrial diamonds	23.9	14.2
360101	Electrical transmission, distribution, and control equipment	14.0	30.4
329101	Grinding wheels and other abrasive products, except industrial diamonds	27.9	34.0
190090	Fluid power products, including pumps, motors, valves, cylinders, rotary actuators, etc. (hydraulic and pneumatic)	11.4	4.9
280020	Ceramic raw materials, including powders, chemicals, and fibers (excluding refractory uses)	1.0	1.5
320601	Ceramic and ceramic composite parts, components, and accessories	6.4	(D)
970099	All other materials and components, parts, containers, and supplies	171.1	[1]177.6
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	188.6	203.2
	INDUSTRY 3546, POWER-DRIVEN HANDTOOLS[2]		
	Materials, ingredients, containers, and supplies	**1 079.3**	**846.6**
	Fluid power products (hydraulic and pneumatic):		
359412	Pumps, motors, and hydrostatic transmissions	1.3	(D)
359301	Cylinders and rotary actuators	(4)	(1)
356921	Filters	.1	(1)
349261	Hose or tube fittings and assemblies	.5	(1)
349271	Valves	.3	(1)
190089	Other fluid power products	.2	(1)
	Fabricated metal products (except forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	37.7	31.7
340078	All other fabricated metal products	120.9	(1)
346000	Forgings	1.8	[3](D)
	Castings (rough and semifinished):		
332001	Iron and steel	29.2	15.7
336005	Aluminum and aluminum-base alloy	68.9	51.2
336003	Other nonferrous	7.4	.1
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	51.1	
331087	All other	12.8	33.0
336002	Nonferrous	5.3	(D)
335792	Insulated copper wire and cable, except magnet wire	14.7	11.3
335770	Magnet wire	20.6	13.8
362100	Electric motors and generators	29.0	(D)
369101	Storage batteries	43.9	(1)
356200	Ball and roller bearings (mounted or unmounted)	46.0	18.8

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3546, POWER-DRIVEN HANDTOOLS[2]—Con.		
356601	Speed changers, gears, and industrial high-speed drives	18.9	8.8
308006	Fabricated plastics products, except gaskets	86.6	41.8
265001	Paperboard containers, boxes, and corrugated paperboard	29.5	(1)
267101	Packaging paper and plastics film, coated and laminated	4.0	(1)
970099	All other materials and components, parts, containers, and supplies	[4]319.8	[1]441.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	128.8	151.1
	INDUSTRY 3547, ROLLING MILL MACHINERY		
	Materials, ingredients, containers, and supplies	**218.9**	**192.8**
	Fluid power products (hydraulic and pneumatic):		
359412	Pumps, motors, and hydrostatic transmissions	4.8	(D)
359301	Cylinders and rotary actuators	2.1	1.3
356921	Filters	.3	(Z)
349261	Hose or tube fittings and assemblies	1.7	(D)
349271	Valves	.7	.7
	Fabricated metal products (except forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	2.1	.6
340078	Other fabricated metal products, except fluid power products	9.6	(1)
	Forgings:		
346200	Iron and steel	16.2	22.3
346300	Nonferrous	(D)	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	10.0	3.9
336005	Aluminum and aluminum-base alloy	(Z)	(Z)
336003	Other nonferrous	.6	(D)
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	16.9	
331022	Sheet and strip	1.5	
331071	Structural shapes	2.5	18.7
331091	All other	5.1	
335001	Aluminum and aluminum-base alloy	.6	.6
335091	Other nonferrous	.2	.3
	Electric motors and generators:		
	Fractional horsepower electric motors and generators (under 1 hp):		
362110	Timing motors, synchronous and subsynchronous	1.4	
362115	Other fractional horsepower electric motors (under 1 hp)	(D)	4.2
362120	Integral horsepower motors and generators (1 hp or more)	1.5	
360101	Electrical transmission, distribution, and control equipment	3.7	.4
362001	Electrical industrial capacitors, resistors, rheostats, and coil windings	(D)	(D)
362520	Numerical controls for metalworking machinery (except programmable)	(D)	–
362521	Programmable controllers for metalworking machinery	2.6	5.5
	Bearings (mounted or unmounted):		
356218	Ball	(D)	(D)
356201	Roller	2.5	1.7
356601	Speed changers, gears, and industrial high-speed drives	(D)	6.3
244021	Wood boxes, pallets, skids, and containers	.3	(1)
354501	Cutting tools for machine tools	2.7	1.2
970099	All other materials and components, parts, containers, and supplies	45.4	[1]73.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	68.4	41.4
	INDUSTRY 3548, WELDING APPARATUS		
	Materials, ingredients, containers, and supplies	**1 057.1**	**899.8**
	Fabricated metal products (except forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	11.2	7.9
340098	All other fabricated metal products	37.2	(1)
346000	Forgings	2.8	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	4.2	2.5
336006	Copper and copper-base alloy	4.2	8.4
336011	Other nonferrous	2.7	2.1
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	19.7	
331022	Sheet and strip	55.0	
331027	Wire and wire products	91.1	160.6
331019	All other	29.0	
335105	Copper and copper-base alloy	36.6	51.1
335001	Aluminum and aluminum-base alloy	11.7	20.7
335099	All other nonferrous	15.5	(1)
335792	Insulated copper wire and cable, except magnet wire	9.4	9.4
	Electric motors and generators:		
	Fractional horsepower electric motors (under 1 hp):		
362110	Timing motors, synchronous and subsynchronous	2.3	1.3
362114	Other (excluding timing motors)	9.5	9.4
362120	Integral horsepower motors and generators (1 hp or more)	9.0	.2
360101	Electrical transmission, distribution, and control equipment	47.7	12.6
362001	Electrical industrial capacitors, resistors, rheostats, and coil windings	25.1	23.7
382301	Pressure gauges	9.9	(1)
	Bearings (mounted or unmounted):		
356218	Ball	4.3	3.4
356201	Roller	1.4	.9
265001	Paperboard containers, boxes, and corrugated paperboard	21.8	12.3
356971	Industrial robots purchased for fabrication with welding equipment	6.7	(1)

See footnotes at end of table.

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Table 7. **Materials Consumed by Kind: 1992 and 1987**—Con.

[Includes cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3548, WELDING APPARATUS—Con.		
970099	All other materials and components, parts, containers, and supplies	400.1	[1]332.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	188.9	240.5
	INDUSTRY 3549, METALWORKING MACHINERY, N.E.C.		
	Materials, ingredients, containers, and supplies	**552.4**	**[r]384.9**
	Fluid power products (hydraulic and pneumatic):		
359412	Pumps, motors, and hydrostatic transmissions	10.0	2.5
359301	Cylinders and rotary actuators	6.5	2.3
356921	Filters	1.1	.4
349261	Hose or tube fittings and assemblies	3.2	1.1
349271	Valves	5.0	2.9
	Fabricated metal products (except forgings):		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	6.7	1.4
340078	Other fabricated metal products, except fluid power products	18.1	([1])
	Forgings:		
346200	Iron and steel	.3	.7
346300	Nonferrous	([4])	([1])
	Castings (rough and semifinished):		
332001	Iron and steel	8.7	5.0
336005	Aluminum and aluminum-base alloy	4.3	4.7
336003	Other nonferrous	.6	.3
	Shapes and forms (except castings, forgings, and fabricated metal products):		
	Steel:		
331007	Bars, bar shapes, and plates	23.4	
331022	Sheet and strip	5.1	
331071	Structural shapes	4.2	23.7
331091	All other	4.0	
335001	Aluminum and aluminum-base alloy	2.5	9.6
335091	Other nonferrous	.8	.2
	Electric motors and generators:		
	Fractional horsepower electric motors and generators (under 1 hp):		
362110	Timing motors, synchronous and subsynchronous	2.1	1.4
362115	Other fractional horsepower electric motors (under 1 hp)	2.5	1.5
362120	Integral horsepower motors and generators (1 hp or more)	12.4	2.9
360101	Electrical transmission, distribution, and control equipment	40.6	11.9
362001	Electrical industrial capacitors, resistors, rheostats, and coil windings	3.0	1.2
362520	Numerical controls for metalworking machinery (except programmable)	1.4	1.6
362521	Programmable controllers for metalworking machinery	12.1	5.4
	Bearings (mounted or unmounted):		
356218	Ball	4.3	1.8
356201	Roller	3.4	1.2
356601	Speed changers, gears, and industrial high-speed drives	8.4	6.1
244021	Wood boxes, pallets, skids, and containers	1.6	([1])
354501	Cutting tools for machine tools	2.7	1.6
970099	All other materials and components, parts, containers, and supplies	[4]180.4	[1]120.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	172.7	[r]173.0

[1]For 1987, material codes are included with material code 970099 because these codes were not collected seperately.
[2]Total cost of materials of establishments that did not report detialed materials data, including establishments that were not mailed a form.
[3]For 1987, material code 346000 included only iron and steel forgings.
[4]For 1992, material codes are combined to avoid disclosing data for individual companies.

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Appendix A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies. A separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the ''Operational Status'' section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the *General Summary* subject report.

Employment and related items. The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees. This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The ''all employees'' number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers. This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees. This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truckdrivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development

laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the *General Summary* and geographic area reports as a separate category.

Payroll. This item includes the gross earnings of all employees on the payrolls of operating manufacturing establishments paid in the calendar year 1992. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payrolls of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours. This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials. This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed. In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $25,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as ''not specified by kind.'' (See Census of Manufactures for the importance of administrative records in the industry.)

Value of shipments. This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of ''all other costs'' (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products. As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1992 census program, information was collected on the output of almost 11,000 individual product items. The term ''product,'' as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term ''product'' as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, ''pharmaceutical preparations'' was distributed into over 100 terms; whereas, ''motor gasoline'' was reported as a single item.

Approximately 6,300 of the product items were listed separately on the 1992 census report forms. Data for

about 4,500 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1992 for these items, as derived from the commodity surveys, are shown in the ''products shipped'' table.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1987 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products. To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Census of Manufactures, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1992 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, etc. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments. The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the U.S. level and beginning in 1964, for all geographic levels.

Value added by manufacture. This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

''Value added'' avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures. For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases. New facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations are excluded. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories. Respondents were asked to report their 1991 and 1992 end-of-year inventories at cost or market. Effective with the 1982 Economic Census, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1992 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for ''all industries'' and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and ''all manufacturing'', which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios. These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

An establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

Supplemental labor costs. Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees.

While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

Retirements of depreciable assets. Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1992. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Depreciation charges for fixed assets. This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

Rental payments. Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciable assets. Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures. The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Quantity of electric energy consumed for heat and power. Data on the cost of purchased electric energy are collected on all census forms. However, data on the quantity of purchased electric energy are collected only on the ASM forms. In addition, information is collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Breakdown of new capital expenditures for machinery and equipment. ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category ''automobiles, trucks, etc., for highway use'' is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

Foreign content of cost of materials. Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

Cost of purchased services. ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, communication services, legal services, accounting and bookkeeping services, advertising, software and other data processing services, and refuse removal. Each of these items reflect the costs paid directly by the establishment, and exclude salaries paid to employees of the establishment for these services.

Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Included in the cost of purchased advertising services are payments for printing, media coverage, and other advertising services and materials.

Included in the cost of purchased software and other data processing services are all purchases by the establishment from other companies. Excluded are services provided by other establishments of the same company (such as by a separate data processing unit).

Included in the cost of purchased refuse removal services are all costs of refuse removal services paid by the establishment, including costs for hazardous waste removal or treatment. Excluded are all costs included in rental payments or as capital expenditures.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed:

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Appendix B.
Annual Survey of Manufactures Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The annual survey of manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 64,000 manufacturing establishments selected from a total of about 216,000 establishments. These 216,000 establishments represent all manufacturing establishments of multiunit companies and all single-establishment companies mailed schedules in the 1987 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1987 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

For the current panel, all establishments of companies with 1987 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 64,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1987 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1987 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1987 Census of Manufactures. Although this portion contained approximately 134,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-records information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1988-1991 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1987 census published number for an item total and the linear ASM estimate of the total for 1987. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail

establishments, to produce the estimates for the years 1983-1991. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

However, the 1992 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete-coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Census Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

Appendix C.
Product Code Reference Tables

Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987

1992	1987
35110	35111
35110	35112
35110 05	35111 01
35110 09	35111 02
35110 11	35112 03
35110 11	35112 13
35110 21	35112 21
35110 22	35112 22
35110 23	35112 23
35110 24	35112 24
35110 61	35112 61
35110 71	35112 71
35110 72	35112 72
35110 75	35112 74
35110 75	35112 76
35110 79	35112 79
35110 81	35112 81
35110 83	35112 83
35110 91	35111 01
35110 95	35111 02
35199 35	35199 41
35199 35	35199 42
35199 39	35199 43
35199 39	35199 44
35199 49	35199 45
35199 49	35199 46
35199 63	35199 47
35199 63	35199 48
35199 67	35199 51
35199 67	35199 52
35199 71	35199 53
35199 71	35199 54
35199 75	35199 55
35199 75	35199 56
35199 83	35199 57
35199 83	35199 58
35199 87	35199 59
35199 87	35199 60
35199 91	35199 61
35199 91	35199 62
35199 99	35199 91
35199 99	35199 92
3531M 08	3531M 09
3531M 21	3531M 09
3531M 21	3531M 15
3531N	3531H
3531N 00	3531H 00
3531P	3531H
3531P	3531K
3531P 06	3531K 06
3531P 07	3531K 07
3531P 11	3531K 11
3531P 20	3531K 20
3531P 21	3531K 21
3531P 22	3531K 22
3531P 24	3531K 24
3531P 25	3531K 25
3531P 27	3531K 27
3531P 53	3531K 53
3531P 55	3531K 55
3531P 61	3531K 61
3531P 70	3531K 70
3531P 74	3531K 74
3531P 77	3531K 77
3531P 82	3531K 82
3531P 85	3531H 00
3531P 90	3531K 90
3531P 97	3531K 97
35329 31	35329 33
35329 31	35329 34
35329 35	35329 37
35329 35	35329 38
35329 42	35329 41
35329 42	35329 43
35329 72	35329 71
35329 72	35329 73
35329 72	35329 75
35337 28	35337 24
35337 28	35337 25
35337 32	35337 26
35337 32	35337 27
35353 41	35353 45
35353 47	35353 45
35363 39	35363 37
35363 39	35363 38
35373 04	35373 05
35373 07	35373 05
35373 09	35373 05
35373 11	35373 05
35374 18	35374 17
35374 18	35374 19
35419 41	35419 21
35419 41	35419 22
35419 41	35419 23
35419 41	35419 24
35419 41	35419 25
35419 41	35419 26
35424 11	35424 01
35424 11	35424 02
35424 75	35424 03
35424 75	35424 04
35424 75	35424 05
35442 03	35442 11
35442 05	35442 11
35442 07	35442 13
35442 09	35442 13
35442 14	35442 15
35442 14	35442 16
35442 21	35442 17
35442 21	35442 18
35442 25	35442 19
35442 25	35442 23
35451 15	35451 16
35451 15	35451 18
35451 21	35451 17
35451 21	35451 19
35451 62	35451 58
35451 62	35451 59
35451 62	35451 61
35451 64	35451 58
35451 64	35451 59
35451 64	35451 63
35451 67	35451 65
35451 67	35451 66
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35451 74	35451 70
35451 74	35451 71
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35451 79	35451 93
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35455 77	35455 92
35455 77	35455 97
35455 79	35455 83
35455 79	35455 93
35455 79	35455 96
35455 79	35455 98
35462 45	35462 47
35462 48	35462 47
35462 49	35462 47
35463 19	35463 12
35463 19	35463 14
35464	35461
35464 01	35461 22
35464 05	35461 35
35464 09	35461 01
35464 09	35461 03
35464 09	35461 04
35464 09	35461 05
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35464 15	35461 03
35464 15	35461 04
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35465 02	35461 04
35465 05	35461 05
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35465 43	35461 32
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35473 43	35473 48
35473 49	35473 48
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35481 14	35481 02
35481 15	35481 05
35481 15	35481 06
35482 09	35482 01
35482 09	35482 02
35482 17	35482 07
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35482 18	35482 15
35482 18	35482 16
35521 57	35521 54
35521 57	35521 56
35521 67	35521 68
35521 67	35521 69
35521 86	35521 84
35521 86	35521 85
35533 34	35533 39
35533 38	35533 31
35533 38	35533 39
35534 12	35534 01
35534 12	35534 02
35534 12	35534 03
35534 13	35534 04
35534 13	35534 05
35534 13	35534 06
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35534 13	35534 08
35534 13	35534 09
35551 01	35551 02
35551 03	35551 02
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35552 09	35552 01
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35552 09	35552 41
35553 00	35553 03
35553 00	35553 05
35553 00	35553 08
35553 00	35553 09
35556 71	35556 65
35556 73	35556 65
35556 79	35556 65
35558 01	35558 02
35558 01	35558 09
35558 03	35558 02
35558 03	35558 09
35558 11	35558 02
35558 11	35558 09
35558 91	35558 89
35558 93	35558 89
35561 18	35561 02
35561 18	35561 07
35561 18	35561 08
35561 18	35561 11
35561 18	35561 19
35562 73	35562 71
35562 73	35562 75
35562 89	35562 85
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35594 25	35594 21

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Part 1. Comparability of Product Classes and Product Codes That Changed: 1992 to 1987—Con.

1992	1987
35595	35599
35595 01	35599 86
35595 03	35599 86
35595 05	35599 86
35595 09	35599 87
35598	35599
35598 01	35599 01
35598 03	35599 03
35598 05	35599 05
35598 07	35599 07
35598 09	35599 09
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35598 51	35599 51
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35598 58	35599 59
35598 61	35599 61
35598 63	35599 63
35598 65	35599 65
35598 67	35599 67
35598 69	35599 69
35598 71	35599 71
35598 74	35599 73
35598 74	35599 75
35598 78	35599 77
35598 78	35599 79
35598 84	35599 82
35598 84	35599 85
35598 88	35599 88
35598 89	35599 89
35598 90	35599 90
35598 91	35599 94
35598 91	35599 95
35598 96	35599 96
35598 97	35599 97
35598 98	35599 80
35598 98	35599 81
35598 98	35599 83
35598 98	35599 85
35598 98	35599 92
35598 98	35599 93
35598 98	35599 99
35643 39	35643 23
35643 39	35643 28
35646 11	35646 10
35646 21	35646 20
35651 23	35651 01
35651 23	35651 15
35651 25	35651 02
35651 25	35651 21
35651 27	35651 06
35651 28	35651 06
35651 28	35651 07
35651 28	35651 08
35651 31	35651 09
35651 31	35651 21
35651 33	35651 11
35651 33	35651 14
35651 35	35651 12
35651 35	35651 13
35651 37	35651 15
35651 41	35651 15
35651 43	35651 16
35651 45	35651 17
35651 49	35651 19
35651 51	35651 21
35651 52	35651 21
35651 53	35651 21
35651 59	35651 19
35651 59	35651 21
35660 34	35660 31
35660 34	35660 32
35660 37	35660 35
35660 37	35660 36
35660 47	35660 33
35660 47	35660 40
35660 49	35660 38
35660 49	35660 39
35676 09	35676 03
35676 09	35676 04
35676 15	35676 05
35676 15	35676 06
35676 21	35676 17
35676 21	35676 19
35681 12	35681 11
35681 12	35681 13
35683 20	35683 21
35683 20	35683 24
35683 23	35683 22
35683 23	35683 24
35683 33	35683 32
35683 33	35683 34
35683 44	35683 43
35683 44	35683 45
35683 89	35683 27
35683 89	35683 29
35683 89	35683 92
35683 89	35683 97
35683 89	35683 98
35683 91	35683 95
35683 99	35683 36
35683 99	35683 93
35694	35692
35694 00	35692 00
35695	35692
35695 00	35692 00
35696	35692
35696 00	35692 00
35699	35697
35699	35698
35699 01	35698 01
35699 03	35698 03
35699 05	35698 05
35699 09	35697 00
35699 11	35698 11
35699 13	35698 13
35699 15	35698 15
35699 17	35698 17
35699 21	35698 21
35699 23	35698 23
35699 25	35698 25
35699 27	35698 27
35699 31	35698 31
35699 41	35698 07
35699 42	35698 07
35699 43	35698 07
35699 44	35698 07
35699 47	35698 35
35699 47	35698 48
35699 51	35698 02
35699 51	35698 04
35699 51	35698 06
35699 51	35698 08
35699 51	35698 12
35699 51	35698 14
35699 51	35698 16
35699 51	35698 18
35699 51	35698 22
35699 51	35698 24
35699 51	35698 26
35699 51	35698 28
35699 51	35698 32
35699 51	35698 36
35699 51	35698 49
35713	35711
35713	35712
35713 00	35711 00
35713 00	35712 00
35714	35711
35714	35712
35714 00	35711 00
35714 00	35712 00
35715	35711
35715	35712
35715 00	35711 00
35715 00	35712 00
35716	35711
35716	35712
35716 00	35711 00
35716 00	35712 00
35717	35711
35717	35712
35717 00	35711 00
35717 00	35712 00
35718	35711
35718	35712
35718 00	35711 00
35718 00	35712 00
35784	35781
35784	35782
35784 00	35781 00
35784 00	35782 00
35789	35783
35789 00	35783 00
35820 11	35820 21
35820 12	35820 13
35820 12	35820 14
35820 29	35820 22
35820 29	35820 26
35820 29	35820 28
35820 31	35820 25
35820 31	35820 35
35820 31	35820 36
35820 39	35820 34
35820 39	35820 41
35820 39	35820 43
35820 39	35820 81
35853 32	35853 31
35853 32	35853 33
35853 37	35853 36
35853 37	35853 38
35853 98	35853 73
35853 98	35853 97
35859 06	35859 04
35859 06	35859 05
35859 06	35859 07
35892 01	35892 05
35892 01	35892 06
35892 01	35892 07
35892 02	35892 03
35892 02	35892 04
35892 02	35892 07
35892 46	35892 35
35892 46	35892 44
35892 84	35892 77
35892 84	35892 78
35892 84	35892 79
35892 86	35892 85
35892 86	35892 87
35892 86	35892 88
35892 96	35892 98
35892 97	35892 80
35892 97	35892 91
35892 97	35892 99
35893 07	35893 08
35893 07	35893 09
35934	35931
35934 00	35931 00
35935	35931
35935 00	35931 00
35939	35933
35939 00	35933 00
35943	35941
35943 00	35941 10
35944	35941
35944 00	35941 10
35945	35941
35945 00	35941 10
35945 00	35941 20
35946	35941
35946 00	35941 10
35946 00	35941 20
35949	35942
35949 00	35942 10
35949 00	35942 20
35962 12	35962 09
35962 12	35962 11
35962 14	35962 13
35962 14	35962 15
35962 21	35962 17
35962 21	35962 19

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:47 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 2
TSF:TIPS92-08443368.DAT;1 1/ 6/ 95 08:44:53 UTF:TIPS93-08443368.DAT;1 1/ 6/ 95 08:44:53 META:TIPS96-08443368.DAT;1 1/ 6/ 95 08:46:59

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992

1987	1992
35111	35110
35111 01	35110 05
35111 01	35110 91
35111 02	35110 09
35111 02	35110 95
35112	35110
35112 03	35110 11
35112 13	35110 11
35112 21	35110 21
35112 22	35110 22
35112 23	35110 23
35112 24	35110 24
35112 61	35110 61
35112 71	35110 71
35112 72	35110 72
35112 74	35110 75
35112 76	35110 75
35112 79	35110 79
35112 81	35110 81
35112 83	35110 83
35199 41	35199 35
35199 42	35199 35
35199 43	35199 39
35199 44	35199 39
35199 45	35199 49
35199 46	35199 49
35199 47	35199 63
35199 48	35199 63
35199 51	35199 67
35199 52	35199 67
35199 53	35199 71
35199 54	35199 71
35199 55	35199 75
35199 56	35199 75
35199 57	35199 83
35199 58	35199 83
35199 59	35199 87
35199 60	35199 87
35199 61	35199 91
35199 62	35199 91
35199 91	35199 99
35199 92	35199 99
3531H	3531N
3531H	3531P
3531H 00	3531N 00
3531H 00	3531P 85
3531K	3531P
3531K 06	3531P 06
3531K 07	3531P 07
3531K 11	3531P 11
3531K 20	3531P 20
3531K 21	3531P 21
3531K 22	3531P 22
3531K 24	3531P 24
3531K 25	3531P 25
3531K 27	3531P 27
3531K 53	3531P 53
3531K 55	3531P 55
3531K 61	3531P 61
3531K 70	3531P 70
3531K 74	3531P 74
3531K 77	3531P 77
3531K 82	3531P 82
3531K 90	3531P 90
3531K 97	3531P 97
3531M 09	3531M 08
3531M 09	3531M 21
3531M 15	3531M 21
35329 33	35329 31
35329 34	35329 31
35329 37	35329 35
35329 38	35329 35
35329 41	35329 42
35329 43	35329 42
35329 71	35329 72
35329 73	35329 72
35329 75	35329 72
35337 24	35337 28
35337 25	35337 28
35337 26	35337 32
35337 27	35337 32
35353 45	35353 41
35353 45	35353 47
35363 37	35363 39
35363 38	35363 39
35373 05	35373 04
35373 05	35373 07
35373 05	35373 09
35373 05	35373 11
35374 17	35374 18
35374 19	35374 18
35419 21	35419 41
35419 22	35419 41
35419 23	35419 41
35419 24	35419 41
35419 25	35419 41
35419 26	35419 41
35424 01	35424 11
35424 02	35424 11
35424 03	35424 75
35424 04	35424 75
35424 05	35424 75
35442 11	35442 03
35442 11	35442 05
35442 13	35442 07
35442 13	35442 09
35442 15	35442 14
35442 16	35442 14
35442 17	35442 21
35442 18	35442 21
35442 19	35442 25
35442 23	35442 25
35451 16	35451 15
35451 17	35451 21
35451 18	35451 15
35451 19	35451 21
35451 58	35451 62
35451 58	35451 64
35451 59	35451 62
35451 59	35451 64
35451 61	35451 62
35451 63	35451 64
35451 65	35451 67
35451 66	35451 67
35451 68	35451 67
35451 70	35451 74
35451 71	35451 74
35451 77	35451 74
35451 82	35451 81
35451 84	35451 81
35451 91	35451 79
35451 93	35451 79
35455 81	35455 77
35455 83	35455 79
35455 91	35455 77
35455 92	35455 77
35455 93	35455 79
35455 94	35455 73
35455 95	35455 73
35455 96	35455 79
35455 97	35455 77
35455 98	35455 79
35461	35464
35461	35465
35461 01	35464 09
35461 01	35464 15
35461 01	35465 02
35461 03	35464 09
35461 03	35464 15
35461 03	35465 02
35461 04	35464 09
35461 04	35464 15
35461 04	35465 02
35461 05	35464 09
35461 05	35464 15
35461 05	35465 05
35461 07	35464 09
35461 07	35464 15
35461 07	35465 07
35461 09	35464 09
35461 09	35464 15
35461 09	35465 09
35461 12	35464 19
35461 12	35465 12
35461 15	35464 19
35461 15	35465 15
35461 16	35464 19
35461 16	35465 16
35461 17	35464 19
35461 17	35465 17
35461 18	35464 19
35461 18	35465 11
35461 18	35465 14
35461 19	35464 19
35461 19	35465 13
35461 19	35465 14
35461 21	35464 19
35461 21	35465 21
35461 22	35464 01
35461 22	35464 19
35461 22	35465 22
35461 23	35464 19
35461 23	35465 23
35461 25	35464 19
35461 25	35465 25
35461 26	35464 19
35461 26	35465 24
35461 26	35465 27
35461 28	35464 19
35461 28	35465 28
35461 29	35464 19
35461 29	35465 29
35461 31	35464 19
35461 31	35465 31
35461 32	35464 19
35461 32	35465 41
35461 32	35465 43
35461 33	35464 19
35461 33	35465 33
35461 34	35464 19
35461 34	35465 38
35461 35	35464 05
35461 35	35464 19
35461 35	35465 38
35461 35	35465 39
35461 36	35464 21
35461 36	35465 36
35461 37	35464 19
35461 37	35465 37
35462 47	35462 45
35462 47	35462 48
35462 47	35462 49
35463 12	35463 19
35463 14	35463 19
35473 48	35473 41
35473 48	35473 43
35473 48	35473 49
35481 01	35481 14
35481 02	35481 14
35481 05	35481 15
35481 06	35481 15
35482 01	35482 09
35482 02	35482 09
35482 07	35482 17
35482 08	35482 17
35482 15	35482 18
35482 16	35482 18
35521 54	35521 57
35521 56	35521 57
35521 68	35521 67
35521 69	35521 67
35521 84	35521 86
35521 85	35521 86
35533 31	35533 38
35533 39	35533 34
35533 39	35533 38
35534 01	35534 12
35534 02	35534 12
35534 03	35534 12
35534 04	35534 13
35534 05	35534 13
35534 06	35534 13
35534 07	35534 13
35534 08	35534 13
35534 09	35534 13
35551 02	35551 01
35551 02	35551 03
35552 01	35552 09
35552 37	35552 09
35552 38	35552 03
35552 38	35552 05
35552 41	35552 09
35553 03	35553 00
35553 05	35553 00
35553 08	35553 00
35553 09	35553 00
35556 65	35556 71
35556 65	35556 73
35556 65	35556 79
35558 02	35558 01
35558 02	35558 03
35558 02	35558 11
35558 09	35558 01
35558 09	35558 03
35558 09	35558 11
35558 89	35558 91
35558 89	35558 93
35561 02	35561 18
35561 07	35561 18
35561 08	35561 18
35561 11	35561 18
35561 19	35561 18
35562 71	35562 73
35562 75	35562 73
35562 85	35562 89
35562 91	35562 89
35563 01	35563 19
35563 02	35563 19
35563 03	35563 19
35563 06	35563 19
35563 07	35563 19
35563 08	35563 19
35563 09	35563 19
35563 14	35563 19
35563 15	35563 19
35592 03	35592 04
35592 05	35592 04
35592 09	35592 15
35593 27	35593 41
35593 28	35593 41
35593 29	35593 41
35594 09	35594 16
35594 13	35594 16
35594 15	35594 16
35594 17	35594 25
35594 19	35594 25
35594 21	35594 25
35599	35595
35599	35598
35599 01	35598 01
35599 03	35598 03
35599 05	35598 05
35599 07	35598 07
35599 09	35598 09
35599 11	35598 11
35599 13	35598 13
35599 15	35598 15
35599 17	35598 17
35599 19	35598 19
35599 22	35598 22
35599 25	35598 25
35599 27	35598 27
35599 29	35598 29
35599 31	35598 31
35599 33	35598 36
35599 35	35598 35
35599 37	35598 36
35599 39	35598 39
35599 41	35598 41
35599 43	35598 43
35599 45	35598 45
35599 47	35598 48
35599 49	35598 48
35599 51	35598 51
35599 53	35598 53
35599 55	35598 55
35599 57	35598 58
35599 59	35598 58
35599 61	35598 61
35599 63	35598 63
35599 65	35598 65
35599 67	35598 67
35599 69	35598 69
35599 71	35598 71
35599 73	35598 74
35599 75	35598 74
35599 77	35598 78
35599 79	35598 78
35599 80	35598 98
35599 81	35598 98
35599 82	35598 84
35599 83	35598 98
35599 85	35598 84
35599 85	35598 98
35599 86	35595 01
35599 86	35595 03
35599 86	35595 05
35599 87	35595 09
35599 88	35598 88
35599 89	35598 89
35599 90	35598 90
35599 92	35598 98
35599 93	35598 98
35599 94	35598 91
35599 95	35598 91
35599 96	35598 96
35599 97	35598 97
35599 99	35598 98
35643 23	35643 39
35643 28	35643 39
35646 10	35646 11
35646 20	35646 21
35651 01	35651 23
35651 02	35651 25
35651 06	35651 27
35651 06	35651 28
35651 07	35651 28
35651 08	35651 28
35651 09	35651 31
35651 11	35651 33
35651 12	35651 35
35651 13	35651 35
35651 14	35651 33

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:47 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 3
TSF:TIPS92-08443368.DAT;1 1/ 6/ 95 08:44:53 UTF:TIPS93-08443368.DAT;1 1/ 6/ 95 08:44:53 META:TIPS96-08443368.DAT;1 1/ 6/ 95 08:46:59

Part 2. Comparability of Product Classes and Product Codes That Changed: 1987 to 1992—Con.

1987	1992
35651 15	35651 23
35651 15	35651 37
35651 15	35651 41
35651 16	35651 43
35651 17	35651 45
35651 19	35651 49
35651 19	35651 59
35651 21	35651 25
35651 21	35651 31
35651 21	35651 51
35651 21	35651 52
35651 21	35651 53
35651 21	35651 59
35660 31	35660 34
35660 32	35660 34
35660 33	35660 47
35660 35	35660 37
35660 36	35660 37
35660 38	35660 49
35660 39	35660 49
35660 40	35660 47
35676 03	35676 09
35676 04	35676 09
35676 05	35676 15
35676 06	35676 15
35676 17	35676 21
35676 19	35676 21
35681 11	35681 12
35681 13	35681 12
35683 21	35683 20
35683 22	35683 23
35683 24	35683 20
35683 24	35683 23
35683 27	35683 89
35683 29	35683 89
35683 32	35683 33
35683 34	35683 33
35683 36	35683 99
35683 43	35683 44
35683 45	35683 44
35683 92	35683 89
35683 93	35683 99
35683 95	35683 91
35683 97	35683 89
35683 98	35683 89
35692	35694
35692	35695
35692	35696
35692 00	35694 00
35692 00	35695 00
35692 00	35696 00
35697	35699
35697 00	35699 09
35698	35699
35698 01	35699 01
35698 02	35699 51
35698 03	35699 03
35698 04	35699 51
35698 05	35699 05
35698 06	35699 51
35698 07	35699 41
35698 07	35699 42
35698 07	35699 43
35698 07	35699 44
35698 08	35699 51
35698 11	35699 11
35698 12	35699 51
35698 13	35699 13
35698 14	35699 51
35698 15	35699 15
35698 16	35699 51
35698 17	35699 17
35698 18	35699 51
35698 21	35699 21
35698 22	35699 51
35698 23	35699 23
35698 24	35699 51
35698 25	35699 25
35698 26	35699 51
35698 27	35699 27
35698 28	35699 51
35698 31	35699 31
35698 32	35699 51
35698 35	35699 47
35698 36	35699 51
35698 48	35699 47
35698 49	35699 51
35711	35713
35711	35714
35711	35715
35711	35716
35711	35717
35711	35718
35711 00	35713 00
35711 00	35714 00
35711 00	35715 00
35711 00	35716 00
35711 00	35717 00
35711 00	35718 00
35712	35713
35712	35714
35712	35715
35712	35716
35712	35717
35712	35718
35712 00	35713 00
35712 00	35714 00
35712 00	35715 00
35712 00	35716 00
35712 00	35717 00
35712 00	35718 00
35781	35784
35781 00	35784 00
35782	35784
35782 00	35784 00
35783	35789
35783 00	35789 00
35820 13	35820 12
35820 14	35820 12
35820 21	35820 11
35820 22	35820 29
35820 25	35820 31
35820 26	35820 29
35820 28	35820 29
35820 34	35820 39
35820 35	35820 31
35820 36	35820 31
35820 41	35820 39
35820 43	35820 39
35820 81	35820 39
35853 31	35853 32
35853 33	35853 32
35853 36	35853 37
35853 38	35853 37
35853 73	35853 98
35853 97	35853 98
35859 04	35859 06
35859 05	35859 06
35859 07	35859 06
35892 03	35892 02
35892 04	35892 02
35892 05	35892 01
35892 06	35892 01
35892 07	35892 01
35892 07	35892 02
35892 35	35892 46
35892 44	35892 46
35892 77	35892 84
35892 78	35892 84
35892 79	35892 84
35892 80	35892 97
35892 85	35892 86
35892 87	35892 86
35892 88	35892 86
35892 91	35892 97
35892 98	35892 96
35892 99	35892 97
35893 08	35893 07
35893 09	35893 07
35931	35934
35931	35935
35931 00	35934 00
35931 00	35935 00
35933	35939
35933 00	35939 00
35941	35943
35941	35944
35941	35945
35941	35946
35941 10	35943 00
35941 10	35944 00
35941 10	35945 00
35941 10	35946 00
35941 20	35945 00
35941 20	35946 00
35942	35949
35942 10	35949 00
35942 20	35949 00
35962 09	35962 12
35962 11	35962 12
35962 13	35962 14
35962 15	35962 14
35962 17	35962 21
35962 19	35962 21

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:47 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 4
TSF:TIPS92-08443368.DAT;1 1/ 6/ 95 08:44:53 UTF:TIPS93-08443368.DAT;1 1/ 6/ 95 08:44:53 META:TIPS96-08443368.DAT;1 1/ 6/ 95 08:46:59

Part 3. Current Industrial Reports by Product Code

[Current Industrial Reports (CIR) data are contained in the publication *Manufacturing Profiles: 1992* [MP-1(92)] issued August 1994 and available through the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. To access the most current CIR data electronically, dial the Census-BEA Electronic Forum at 301-457-2310. Your communications modem should be set as follows: Baud rate: 1200, 2400, 9600; Parity: None; Data bits: 8; Stop bits: 1; Duplex: full. Before making your first call, decide on a password and be prepared to provide the following regarding your computer: PC brand name, monitor screen dimensions (e.g., 80 columns by 24 lines), monitor color support, modem baud rate, and PC communications software package. Call the voice number, 301-457-1242, for further bulletin board assistance]

Product code	Current Industrial Report	Product code	Current Industrial Report
3519100	MA35L, Internal Combustion Engines	3561510	MA35P, Pumps and Compressors
3519300	MA35L, Internal Combustion Engines	3561520	MA35P, Pumps and Compressors
3519400	MA35L, Internal Combustion Engines	3561530	MA35P, Pumps and Compressors
3519600	MA35L, Internal Combustion Engines	3562100	MA35Q, Antifriction Bearings
3523100	MA35A, Farm Machinery and Lawn and Garden Equipment	3562200	MA35Q, Antifriction Bearings
3523200	MA35A, Farm Machinery and Lawn and Garden Equipment	3562300	MA35Q, Antifriction Bearings
3523300	MA35A, Farm Machinery and Lawn and Garden Equipment	3562400	MA35Q, Antifriction Bearings
3523500	MA35A, Farm Machinery and Lawn and Garden Equipment	3562900	MA35Q, Antifriction Bearings
3523600	MA35A, Farm Machinery and Lawn and Garden Equipment	3563100	MA35P, Pumps and Compressors
3523926	MA35A, Farm Machinery and Lawn and Garden Equipment	3563120	MA35P, Pumps and Compressors
3523931	MA35A, Farm Machinery and Lawn and Garden Equipment	3569400	MA35N, Fluid Power Products, Including Aerospace
3523953	MA35A, Farm Machinery and Lawn and Garden Equipment	3569500	MA35N, Fluid Power Products, Including Aerospace
3523C00	MA35A, Farm Machinery and Lawn and Garden Equipment	3569600	MA35N, Fluid Power Products, Including Aerospace
3523E00	MA35A, Farm Machinery and Lawn and Garden Equipment	3571300	MA35R, Computers and Office and Accounting Machines
3523F00	MA35A, Farm Machinery and Lawn and Garden Equipment	3571400	MA35R, Computers and Office and Accounting Machines
3524100	MA35A, Farm Machinery and Lawn and Garden Equipment	3571500	MA35R, Computers and Office and Accounting Machines
3524400	MA35A, Farm Machinery and Lawn and Garden Equipment	3571600	MA35R, Computers and Office and Accounting Machines
3524600	MA35A, Farm Machinery and Lawn and Garden Equipment	3571700	MA35R, Computers and Office and Accounting Machines
3531A00	MA35D, Construction Machinery	3571800	MA35R, Computers and Office and Accounting Machines
3531B00	MA35D, Construction Machinery	3572100	MA35R, Computers and Office and Accounting Machines
3531C00	MA35D, Construction Machinery	3572200	MA35R, Computers and Office and Accounting Machines
3531E00	MA35D, Construction Machinery	3575100	MA35R, Computers and Office and Accounting Machines
3531F00	MA35D, Construction Machinery	3575200	MA35R, Computers and Office and Accounting Machines
3531G00	MA35D, Construction Machinery	3577100	MA35R, Computers and Office and Accounting Machines
3531N00	MA35D, Construction Machinery	3577200	MA35R, Computers and Office and Accounting Machines
3531P20	MA35D, Construction Machinery	3578400	MA35R, Computers and Office and Accounting Machines
3531P70	MA35F, Mining Machinery, and Mineral Processing Equipment	3578900	MA35R, Computers and Office and Accounting Machines
3531P90	MA35D, Construction Machinery	3579200	MA35R, Computers and Office and Accounting Machines
3532500	MA35F, Mining Machinery, and Mineral Processing Equipment	3579300	MA35R, Computers and Office and Accounting Machines
3532600	MA35F, Mining Machinery, and Mineral Processing Equipment	3579500	MA35R, Computers and Office and Accounting Machines
3532700	MA35F, Mining Machinery, and Mineral Processing Equipment	3579900	MA35R, Computers and Office and Accounting Machines
3532800	MA35F, Mining Machinery, and Mineral Processing Equipment	3579A00	MA35R, Computers and Office and Accounting Machines
3533A00	MA35F, Mining Machinery, and Mineral Processing Equipment	3581100	MA35U, Vending Machines
3536315	MA35F, Mining Machinery, and Mineral Processing Equipment	3585100	MA35M, Air-Conditioning and Refrigeration Equipment
3539500	MA35N, Fluid Power Products, Including Aerospace	3585200	MA35M, Air-Conditioning and Refrigeration Equipment
3541300	MQ35W, Metalworking Machinery	3585343	MA35M, Air-Conditioning and Refrigeration Equipment
3541400	MQ35W, Metalworking Machinery	3585400	MA35M, Air-Conditioning and Refrigeration Equipment
3541500	MQ35W, Metalworking Machinery	3585500	MA35M, Air-Conditioning and Refrigeration Equipment
3541600	MQ35W, Metalworking Machinery	3585600	MA35M, Air-Conditioning and Refrigeration Equipment
3541A00	MQ35W, Metalworking Machinery	3585C00	MA35M, Air-Conditioning and Refrigeration Equipment
3541B00	MQ35W, Metalworking Machinery	3593200	MA35N, Fluid Power Products, Including Aerospace
3541C00	MQ35W, Metalworking Machinery	3593400	MA35N, Fluid Power Products, Including Aerospace
3541D00	MQ35W, Metalworking Machinery	3593900	MA35N, Fluid Power Products, Including Aerospace
3542100	MQ35W, Metalworking Machinery	3594300	MA35N, Fluid Power Products, Including Aerospace
3542200	MQ35W, Metalworking Machinery	3594400	MA35N, Fluid Power Products, Including Aerospace
3542300	MQ35W, Metalworking Machinery	3594500	MA35N, Fluid Power Products, Including Aerospace
3561100	MA35P, Pumps and Compressors	3594600	MA35N, Fluid Power Products, Including Aerospace
3561300	MA35P, Pumps and Compressors	3594900	MA35N, Fluid Power Products, Including Aerospace

TIPS [UPF] BATCH_1674 [APS_PPGB,C_BROOKS] APS-PPGB 1/ 6/ 95 8:47 AM MACHINE: MCVX26 DATA:NONE TAPE: NOreel FRAME: 5
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Publication Program

1992 CENSUS OF MANUFACTURES

Publications of the 1992 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

Preliminary Reports

Industry series—83 reports (MC92-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the United States and States are released in one report.

Final Reports

Industry series—83 reports (MC92-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries (''dairy products'' includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC92-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—3 reports (MC92-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC92-R-1)

The *Numerical List of Manufactured and Mineral Products* includes a description of the principal products and services published in the 1992 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC92-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and Zip Codes for each State. This report is available only on compact disc-read only memory (CD-ROM).

Analytical Reports—2 reports (AR92-1 and -2)

Exports From Manufacturing Establishments (AR92-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR92-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Electronic Media

All data included in the printed reports are available on CD-ROM. The CD-ROM's provide the same information found in the reports as well as additional information not published in the final reports, such as location of manufacturing plants. Electronic media products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, financial, insurance, real estate, service industries, construction industries, mineral industries, transportation, communications, utilities, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1992 Economic Census. A separate series of reports covers the census of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Commonwealth of the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services, Bureau of the Census, Washington, DC 20233-8300.