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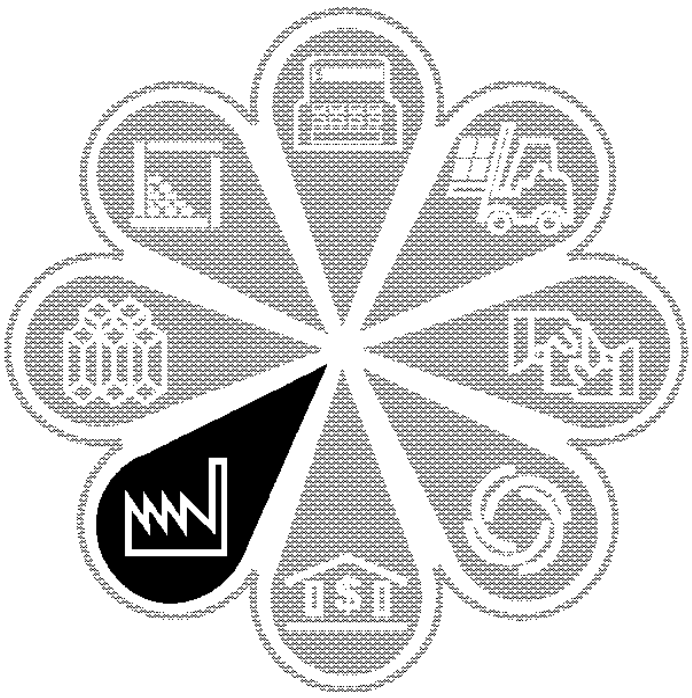
1992 Census of Manufactures

MC92-I-35E

INDUSTRY SERIES

General Industrial Machinery and Equipment

Industries 3561, 3562, 3563, 3564, 3565, 3566, 3567, 3568, and 3569



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

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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 **Richard Wiesler.**

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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.

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General Industrial Machinery and Equipment

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TIPS UPF [MCD_SRB,J_SMITH] 5/ 23/ 95 10:06:06 EPCV22 TLP:35E_TOCDATA.TLP;1 5/ 23/ 95 10:05:10 DATA:NONE UPF:DIR:35E_TOC.UPF PAGE: 1
TSF:TIPS92-10051233.DAT;1 5/ 23/ 95 10:05:24 UTF:TIPS93-10051233.DAT;1 5/ 23/ 95 10:05:24 META:TIPS96-10051233.DAT;1 5/ 23/ 95 10:06:00

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	
3561	Pumps and Pumping Equipment
3562	Ball and Roller Bearings
3563	Air and Gas Compressors
3564	Blowers and Fans
3565	Packaging Machinery
3566	Speed Changers, Drives, and Gears
3567	Industrial Furnaces and Ovens
3568	Power Transmission Equipment, N.E.C.
3569	General Industrial 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 3561, PUMPS AND PUMPING EQUIPMENT

This industry is made up of establishments primarily engaged in manufacturing pumps and pumping equipment for general industrial, commercial, or household use, except fluid power pumps and motors. Also included in this industry are establishments primarily engaged in manufacturing domestic water and sump pumps. Establishments primarily engaged in manufacturing fluid power pumps and motors are classified in industry 3594; those manufacturing measuring and dispensing pumps for gasoline service station use are classified in industry 3586; those manufacturing vacuum pumps, except laboratory, are classified in industry 3563; those manufacturing laboratory vacuum pumps are classified in industry 3821; and those manufacturing pumps for motor vehicles are classified in industry 3714.

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 3561, Pumps and Pumping Equipment, had employment of 36.9 thousand. The employment figure was 5 percent above the 35.2 thousand reported in 1987.

The leading States in employment in 1992 were Ohio, California, Pennsylvania, and Texas, accounting for approximately 39 percent of the industry's employment. This represents a shift from 1987 when California, Ohio, Oklahoma, and Texas accounted for approximately 42 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $5.3 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

[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.

3561 shipped $4.3 billion of pumps and pumping equipment (except hydraulic fluid power) considered primary to the industry, $465.0 million of secondary products, and had $496.1 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 90 percent (specialization ratio). In 1987, the specialization ratio was 88 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 91 percent.

The products primary to industry 3561, no matter in what industry they were produced, appear in table 6a and aggregate to $4.6 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 pumps and pumping equipment industry amounted to $2.5 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 12 percent of the total value of shipments.

INDUSTRY 3562, BALL AND ROLLER BEARINGS

This industry is made up of establishments primarily engaged in manufacturing ball and roller bearings (including ball or roller bearing pillow block, flange, takeup cartridge, and hangar units) and parts. Establishments primarily engaged in manufacturing plain bearings are classified in industry 3568. Products of this industry also are collected in the Current Industrial Report (CIR) MA-35Q, Anti-Friction Bearings. For information regarding the CIR, see Contacts for Data Users at the end of the Census of Manufactures section.

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 3562, Ball and Roller Bearings, had employment of 34.9 thousand. The employment figure was 5 percent below the 36.9 thousand reported in 1987.

The leading States in employment in 1992 were Connecticut, New Hampshire, Ohio, and South Carolina. These same States were the leaders in 1987.

The total value of shipments for establishments classified in this industry was $4.3 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 3562 shipped $4.1 billion of ball and roller bearings products considered primary to the industry, $92.1 million of secondary products, and had $128.4 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 98 percent (specialization ratio). In 1987, the specialization ratio also was 98 percent.

Establishments in this industry also accounted for 98 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 98 percent.

The products primary to industry 3562, no matter in what industry they were produced, appear in table 6a and aggregate to $4.1 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 ball and roller bearings industry amounted to $1.7 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 1 percent of the total value of shipments.

INDUSTRY 3563, AIR AND GAS COMPRESSORS

This industry is made up of establishments primarily engaged in manufacturing air and gas compressors and vacuum pumps for general industrial use. Also included in this industry are establishments primarily engaged in manufacturing nonagricultural spraying and dusting equipment. Establishments primarily engaged in refrigeration and air-conditioning compressors and compressing units are classified in industry 3585; those manufacturing pneumatic pumps and motors for fluid power transmission are classified in industry 3594; those manufacturing agricultural spraying and dusting equipment are classified in industry 3523; and those manufacturing laboratory vacuum pumps are classified in industry 3821.

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 3563, Air and Gas Compressors, had employment of 23.4 thousand. The employment figure was 2 percent below the 23.8 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 New York, Pennsylvania, Illinois, and Ohio, accounting for approximately 53 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 $4.2 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 3563 shipped $3.3 billion of air and gas compressors, vacuum pumps, and industrial spraying equipment considered primary to the industry, $384.0 million of secondary products, and had $536.1 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 89 percent (specialization ratio). In 1987, the specialization ratio also was 89 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 was 94 percent.

The products primary to industry 3563, no matter in what industry they were produced, appear in table 6a and aggregate to $3.5 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 air and gas compressors industry amounted to $2.1 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 12 percent of the total value of shipments.

INDUSTRY 3564, BLOWERS AND FANS

This industry is made up of establishments primarily engaged in manufacturing industrial and commercial blowers, industrial and commercial exhaust and ventilating fans, and attic fans. Also included in this industry are establishments primarily engaged in manufacturing dust collection and other air-purification equipment for heating, ventilating, and air-conditioning systems, or for industrial gas cleaning and air pollution abatement systems. Establishments primarily engaged in manufacturing air-conditioning units are classified in industry 3585; those manufacturing free air-circulating fans for use on desks, pedestals, or wall brackets as well as household window-type fans and roll-abouts, kitchen and household ventilating and exhaust electric fans, except attic, are classified in industry 3634.

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 3564, Blowers and Fans, had employment of 26.0 thousand. The employment figure was 5 percent above the 24.8 thousand reported in 1987.

The leading States in employment in 1992 were Ohio, Illinois, California, and North Carolina, accounting for approximately 33 percent of the industry's employment. This represents a shift from 1987 when Ohio, New York, California, and North Carolina accounted for approximately 37 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $3.0 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 3564 shipped $2.7 billion of blowers, fans, and purification equipment considered primary to the industry, $154.3 million of secondary products, and had $148.0 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 95 percent (specialization ratio). In 1987, the specialization ratio was 91 percent.

Establishments in this industry also accounted for 90 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio also was 90 percent.

The products primary to industry 3564, no matter in what industry they were produced, appear in table 6a and aggregate to $3.0 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 blowers and fans industry amounted to $1.3 billion. 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 13 percent of the total value of shipments.

INDUSTRY 3565, PACKAGING MACHINERY

This industry is made up of establishments primarily engaged in manufacturing packaging machinery, including wrapping and bottling machinery.

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 3565, Packaging and Machinery, had employment of 26.2 thousand. The employment figure was 16 percent above the 22.6 thousand reported in 1987. Compared with 1991, employment increased 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 California, Illinois, Wisconsin, and Ohio, accounting for approximately 43 percent of the industry's employment. This represents a shift from 1987 when Illinois, Ohio, California, and New Jersey accounted for approximately 42 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $3.1 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 3565 shipped $2.7 billion of packaging, wrapping, and bottling machinery and dedicated parts considered primary to the industry, $210.5 million of secondary products, and had $246.8 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 93 percent (specialization ratio). In 1987, the specialization ratio was 90 percent.

Establishments in this industry also accounted for 94 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 90 percent.

The products primary to industry 3565, no matter in what industry they were produced, appear in table 6a and aggregate to $2.8 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 packaging machinery industry amounted to $1.3 billion. 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 13 percent of the total value of shipments.

INDUSTRY 3566, SPEED CHANGERS, DRIVES, AND GEARS

This industry is made up of establishments primarily engaged in manufacturing speed changers, industrial high-speed drives (except hydrostatic drives), and gears. Establishments primarily engaged in manufacturing automotive power transmission equipment are classified in industry 3714; those manufacturing aircraft power transmission equipment are classified in industry 3728; and those manufacturing industrial hydrostatic drives (transmissions) are classified in industry 3594.

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 3566, Speed Changers, Drives, and Gears, had employment of 15.7 thousand. The employment figure was 12 percent below the 17.9 thousand reported in 1987. Compared with 1991, employment decreased 9 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 Illinois, Indiana, New York, and Wisconsin. This represents a shift from 1987 when Wisconsin, Illinois, Indiana, and Pennsylvania were the leading States.

The total value of shipments for establishments classified in this industry was $1.8 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 3566 shipped $1.5 billion of speed changers, industrial high-speed drives, and gears considered primary to the industry, $191.2 million of secondary products, and had $116.0 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 89 percent (specialization ratio). In 1987, the specialization ratio was 91 percent.

Establishments in this industry also accounted for 90 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 3566, no matter in what industry they were produced, appear in table 6a and aggregate to $1.7 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 speed changers, drives, and gears industry amounted to $646.3 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 9 percent of the total value of shipments.

INDUSTRY 3567, INDUSTRIAL FURNACES AND OVENS

This industry is made up of establishments primarily engaged in manufacturing industrial process furnaces, ovens, induction and dielectric heating equipment, and related devices. Establishments primarily engaged in manufacturing bakery ovens are classified in industry 3556; those manufacturing cement, wood, and chemical kilns are classified in industry 3559; those manufacturing cremating ovens are classified in industry 3569; and those manufacturing laboratory furnaces and ovens are classified in industry 3821.

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 3567, Industrial Furnaces and Ovens, had employment of 17.0 thousand. The employment figure was 2 percent above the 16.6 thousand reported in 1987.

The leading States in employment in 1992 were California, Missouri, Michigan, and Illinois, accounting for approximately 37 percent of the industry's employment. This represents a shift from 1987 when California, Pennsylvania, Ohio, and Illinois accounted for approximately 38 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $1.8 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 3567 shipped $1.5 billion of industrial furnaces, ovens, kilns, and related heating units considered primary to the industry, $126.4 million of secondary products, and had $100.6 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 88 percent.

Establishments in this industry also accounted for 90 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 93 percent.

The products primary to industry 3567, no matter in what industry they were produced, appear in table 6a and aggregate to $1.7 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 industrial furnaces and ovens industry amounted to $764.2 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 10 percent of the total value of shipments.

INDUSTRY 3568, POWER TRANSMISSION EQUIPMENT, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing mechanical power transmission equipment and parts, for industrial machinery. Establishments primarily engaged in manufacturing motor vehicle power transmission equipment are classified in industry 3714; those manufacturing aircraft power transmission equipment are classified in industry 3728; those manufacturing ball and roller bearings are classified in industry 3562; and those manufacturing speed changers, industrial high-speed drives, and gears are classified in industry 3566.

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 3568, Power Transmission Equipment, N.E.C., had employment of 21.8 thousand. The employment figure was 1 percent below the 22.0 thousand reported in 1987.

The leading States in employment in 1992 were Illinois, Wisconsin, Ohio, and Indiana, accounting for approximately 40 percent of the industry's employment. This represents a shift from 1987 when Illinois, Wisconsin, Michigan, and Ohio also accounted for approximately 40 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $2.4 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 3568 shipped $2.1 billion of plain bearings and bushings, clutches, brakes, couplings, chains, sprockets, and related products considered primary to the industry, $194.6 million of secondary products, and had $158.2 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 91 percent (specialization ratio). In 1987, the specialization ratio also 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 86 percent.

The products primary to industry 3568, no matter in what industry they were produced, appear in table 6a and aggregate to $2.3 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 power

transmission equipment, not elsewhere classified, industry amounted to $922.0 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with less than 9 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 3569, GENERAL INDUSTRIAL MACHINERY, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing machinery, equipment, and components for general industrial use, for which no other specific classification is provided. Machine shops primarily engaged in producing machine and equipment parts, usually on a job or order basis, are classified in industry 3599.

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 3569, General Industrial Machinery, N.E.C., had employment of 41.5 thousand. The employment figure was 2 percent above the 40.6 thousand reported in 1987.

The leading States in employment in 1992 were New York, California, Michigan, and Pennsylvania, accounting for approximately 35 percent of the industry's employment. This represents a shift from 1987 when California, Michigan, Massachusetts, and New York were the leading States.

The total value of shipments for establishments classified in this industry was $5.5 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 3569 shipped $4.5 billion of filters, strainers, robots, mixers, separators, automatic fire sprinklers, compressed air and gas dryers, centralized automatic industrial lubricating systems, and other similarly disparate products considered primary to the industry, $537.7 million of secondary products, and had $444.4 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 89 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 86 percent.

The products primary to industry 3569, no matter in what industry they were produced, appear in table 6a and aggregate to $5.1 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 general industrial machinery, not elsewhere classified, industry amounted to $2.3 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.

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 3561, PUMPS AND PUMPING EQUIPMENT															
1992 Census	354	430	231	36.9	1 225.3	20.9	41.0	582.1	2 746.0	2 473.1	5 268.4	155.0	1 220.0	90	94
1991 ASM	(NA)	(NA)	(NA)	37.8	1 168.1	20.8	40.5	543.5	2 706.0	2 501.7	5 218.1	140.1	1 326.3	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	37.4	1 110.4	20.5	40.1	527.3	2 552.8	2 311.9	4 830.3	146.2	1 247.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	37.4	1 077.1	20.4	40.6	516.1	2 379.6	2 179.2	4 520.0	99.8	1 208.6	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	36.9	1 040.2	20.7	41.0	506.5	2 436.1	2 126.2	4 497.9	102.2	1 185.5	(NA)	(NA)
1987 Census	333	405	226	35.2	969.9	19.7	38.4	458.7	2 154.5	1 837.2	3 998.3	95.8	1 125.5	88	91
INDUSTRY 3562, BALL AND ROLLER BEARINGS															
1992 Census	122	183	122	34.9	1 091.2	28.2	57.5	824.6	2 546.7	1 717.4	4 287.9	206.5	889.8	98	98
1991 ASM	(NA)	(NA)	(NA)	36.6	1 054.0	29.8	57.3	793.8	2 451.9	1 540.3	4 051.2	305.7	918.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	39.0	1 102.1	32.1	64.2	843.5	2 481.7	1 790.8	4 306.3	363.9	981.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	39.1	1 108.3	32.1	66.9	849.6	2 575.5	1 828.9	4 327.3	271.2	1 033.2	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	38.8	1 077.7	31.4	67.2	818.2	2 361.2	1 818.6	4 143.7	196.1	941.3	(NA)	(NA)
1987 Census	113	169	116	36.9	949.9	29.2	60.0	719.3	2 203.3	1 511.5	3 723.7	154.7	858.2	98	98
1986 ASM	(NA)	(NA)	(NA)	38.4	961.2	30.3	60.6	709.5	2 159.9	1 402.3	3 597.3	173.0	870.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	39.6	969.6	31.1	60.8	715.3	2 220.4	1 410.2	3 679.3	138.7	886.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	42.4	1 026.5	34.0	66.7	762.6	2 222.0	1 623.4	3 775.8	126.8	935.1	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	37.7	863.7	29.9	58.4	635.2	1 655.3	1 272.0	2 964.6	114.7	806.9	(NA)	(NA)
1982 Census	109	162	116	43.8	910.4	33.6	61.6	647.8	1 849.1	1 220.0	3 149.5	164.8	891.0	96	99
1981 ASM	(NA)	(NA)	(NA)	53.3	1 091.4	42.4	83.0	825.6	2 251.3	1 686.6	3 916.7	186.3	855.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	52.6	988.7	42.3	83.1	757.9	2 022.8	1 493.6	3 449.0	245.1	814.4	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	53.3	955.0	43.1	87.3	738.4	1 875.6	1 570.8	3 411.2	140.0	746.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	52.7	858.8	43.2	86.9	665.3	1 663.0	1 330.4	2 946.3	122.0	687.6	(NA)	(NA)
1977 Census	102	149	104	50.6	752.6	41.3	82.4	579.9	1 472.7	1 139.9	2 567.3	132.9	621.7	96	98
INDUSTRY 3563, AIR AND GAS COMPRESSORS															
1992 Census	220	258	120	23.4	777.5	13.5	27.4	382.1	2 069.8	2 120.2	4 170.3	138.0	1 007.4	89	92
1991 ASM	(NA)	(NA)	(NA)	26.1	837.0	14.8	30.1	415.4	2 016.5	2 305.0	4 389.7	96.8	1 035.8	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	24.5	768.1	13.5	27.4	366.5	1 769.9	2 057.6	3 806.9	60.3	944.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	23.9	742.9	13.1	26.8	355.1	1 600.3	1 936.1	3 537.3	49.2	906.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	25.2	735.4	14.0	28.4	360.0	1 606.4	1 879.6	3 485.7	70.7	934.2	(NA)	(NA)
1987 Census	223	259	136	23.8	651.8	12.4	24.5	298.7	1 415.1	1 609.8	3 050.9	68.8	932.5	89	94
1986 ASM	(NA)	(NA)	(NA)	23.3	640.1	12.1	23.8	289.4	1 392.7	1 419.0	2 817.5	68.0	813.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	26.8	681.3	14.7	28.3	325.3	1 557.1	1 481.4	3 077.5	110.3	842.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	27.8	695.0	15.3	29.9	335.9	1 586.8	1 507.3	3 108.9	115.3	902.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	26.2	606.1	13.8	25.9	286.1	1 347.3	1 328.2	2 683.4	94.8	903.0	(NA)	(NA)
1982 Census	239	282	144	31.8	709.3	17.3	34.1	344.0	1 470.1	1 698.3	3 270.0	118.1	985.6	90	91
1981 ASM	(NA)	(NA)	(NA)	32.7	701.9	19.0	38.1	367.3	1 635.6	1 597.9	3 185.1	117.6	901.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	34.1	664.6	20.3	41.0	354.8	1 616.1	1 499.9	3 050.6	89.5	863.7	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	35.9	625.7	21.6	43.9	341.8	1 560.3	1 338.3	2 854.2	71.4	819.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	32.9	536.2	19.8	39.9	299.6	1 347.5	1 087.4	2 341.7	81.2	724.3	(NA)	(NA)
1977 Census	148	175	103	32.0	465.6	19.1	38.2	255.2	1 145.5	953.3	2 075.6	55.8	610.9	88	89
INDUSTRY 3564, BLOWERS AND FANS															
1992 Census	517	587	257	26.0	723.9	17.5	34.9	394.5	1 647.9	1 339.0	3 000.9	60.7	361.0	95	90
1991 ASM	(NA)	(NA)	(NA)	26.6	700.2	16.4	32.8	351.9	1 557.7	1 293.9	2 863.5	46.0	427.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	27.7	724.8	16.8	33.9	363.5	1 519.6	1 341.7	2 850.1	56.9	457.4	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	27.7	674.7	17.3	34.7	354.5	1 528.8	1 254.1	2 760.4	55.1	413.5	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	25.2	576.0	16.9	33.9	325.3	1 365.6	1 097.6	2 441.0	42.1	367.7	(NA)	(NA)
1987 Census	445	507	242	24.8	548.6	16.0	32.6	309.0	1 282.4	996.7	2 272.4	46.8	334.9	91	90
1986 ASM	(NA)	(NA)	(NA)	26.3	575.6	17.5	34.5	325.1	1 155.5	1 034.5	2 239.1	53.6	334.6	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	26.2	538.0	17.7	33.4	301.6	1 198.2	947.5	2 149.7	42.6	351.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	26.4	533.7	17.8	34.4	305.7	1 169.7	955.9	2 119.4	47.9	372.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	26.8	528.8	16.9	32.6	280.5	1 131.6	915.8	2 055.9	34.7	366.6	(NA)	(NA)
1982 Census	450	502	240	29.8	553.6	19.1	37.2	306.0	1 160.0	999.8	2 173.5	57.1	388.7	88	92
1981 ASM	(NA)	(NA)	(NA)	30.1	517.6	19.7	39.0	296.5	1 069.5	966.7	2 033.4	40.1	314.9	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	31.0	483.0	20.6	39.9	282.2	966.7	949.1	1 908.1	41.7	307.1	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	31.1	450.4	21.0	41.7	264.0	914.6	836.8	1 737.5	36.9	294.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	29.0	401.3	19.6	39.0	232.0	817.9	718.9	1 528.6	36.8	249.5	(NA)	(NA)
1977 Census	432	482	198	28.0	356.8	18.6	36.7	209.6	776.7	662.8	1 430.8	37.5	242.9	89	87
INDUSTRY 3565, PACKAGING MACHINERY															
1992 Census	590	631	264	26.2	894.4	15.4	31.0	427.6	1 913.5	1 252.4	3 126.9	70.1	753.0	93	94
1991 ASM	(NA)	(NA)	(NA)	23.9	797.2	13.7	28.1	393.2	1 627.0	1 222.4	2 879.9	68.4	592.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	23.5	762.2	13.3	27.1	368.8	1 735.4	1 080.3	2 762.2	73.5	615.9	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	23.5	699.2	14.0	28.4	359.4	1 553.6	950.9	2 497.8	67.1	581.4	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	21.7	650.8	12.5	25.1	316.2	1 362.0	841.9	2 185.9	39.4	527.1	(NA)	(NA)
1987 Census	415	439	231	22.6	631.9	13.4	26.6	327.2	1 406.8	785.1	2 189.9	54.4	538.4	90	90
INDUSTRY 3566, SPEED CHANGERS, DRIVES, AND GEARS															
1992 Census	256	287	145	15.7	495.8	10.4	20.6	283.7	1 160.5	646.3	1 823.1	69.8	406.3	89	90
1991 ASM	(NA)	(NA)	(NA)	17.2	509.5	11.5	23.1	296.6	1 194.1	703.8	1 916.5	63.2	433.0	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	18.4	551.0	12.6	26.0	338.2	1 353.0	734.9	2 055.7	81.1	464.6	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	18.2	524.2	12.6	25.5	330.7	1 166.5	727.1	1 911.6	59.0	414.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	19.3	530.0	13.3	26.5	326.0	1 260.8	667.3	1 916.9	63.4	424.7	(NA)	(NA)
1987 Census	251	276	157	17.9	474.0	11.9	23.8	289.0	1 004.4	555.4	1 569.0	65.0	404.5	91	87
1986 ASM	(NA)	(NA)	(NA)	17.4	474.3	11.7	23.7	283.3	986.6	527.8	1 529.8	65.6	385.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	18.6	478.1	12.7	25.8	297.4	992.2	552.1	1 555.6	71.3	394.4	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	20.6	505.0	13.8	28.1	306.0	1 029.6	586.7	1 609.0	73.6	430.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	19.6	436.2	12.8	24.2	247.0	857.3	476.4	1 363.7	79.7	423.2	(NA)	(NA)
1982 Census	282	309	180	24.1	503.9	15.8	29.7	298.4	1 020.9	552.7	1 631.6	93.2	457.8	86	87
1981 ASM	(NA)	(NA)	(NA)	25.7	529.7	17.6	35.3	328.0	1 158.3	673.7	1 788.7	95.1	444.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	28.3	516.9	19.6	38.1	318.1	1 097.2	647.9	1 740.2	77.5	390.9	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	27.7	474.8	19.4	39.1	300.7	1 070.9	602.7	1 603.8	82.9	385.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	25.9	410.3	17.8	35.2	252.5	861.2	485.5	1 345.8	74.8	311.1	(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 3566, SPEED CHANGERS, DRIVES, AND GEARS—Con.															
1977 Census	307	327	162	25.3	365.4	17.6	35.0	226.7	803.1	429.7	1 222.3	48.5	297.8	87	84
INDUSTRY 3567, INDUSTRIAL FURNACES AND OVENS															
1992 Census	377	409	181	17.0	529.4	10.3	20.1	230.9	982.1	764.2	1 757.7	27.6	306.9	92	90
1991 ASM	(NA)	(NA)	(NA)	17.5	472.3	10.9	22.1	229.9	940.0	714.3	1 679.6	29.0	302.5	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	18.9	500.0	11.7	23.6	246.2	902.5	791.4	1 766.1	40.2	307.3	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	19.6	508.6	12.5	25.0	258.7	1 009.1	798.2	1 778.7	46.1	360.9	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	18.2	453.4	11.1	21.6	212.0	970.9	744.5	1 697.6	39.4	298.0	(NA)	(NA)
1987 Census	342	370	170	16.6	401.1	9.9	19.1	195.7	821.6	623.6	1 434.8	27.2	249.5	88	93
1986 ASM	(NA)	(NA)	(NA)	15.4	357.7	8.4	16.0	160.2	687.3	580.6	1 291.7	21.9	232.0	(NA)	(S)
1985 ASM	(NA)	(NA)	(NA)	15.2	327.1	8.6	15.7	153.1	686.9	596.5	1 288.5	27.4	228.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	14.7	306.0	8.7	16.5	148.3	702.7	519.6	1 197.2	26.5	238.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	13.8	267.7	8.2	15.5	131.2	582.3	383.2	954.2	12.2	204.3	(NA)	(NA)
1982 Census	321	353	172	16.1	312.6	9.2	17.8	149.2	624.9	465.2	1 102.2	21.1	204.5	93	94
1981 ASM	(NA)	(NA)	(NA)	16.7	300.2	10.1	19.1	152.4	643.2	496.3	1 115.9	22.1	203.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	17.9	287.9	11.2	21.1	147.6	599.6	489.3	1 108.2	17.6	180.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	17.6	263.1	11.3	21.4	140.0	563.4	444.3	1 004.2	21.1	188.6	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	15.1	224.9	9.0	17.2	113.0	464.4	342.0	810.5	20.7	157.8	(NA)	(NA)
1977 Census	311	327	137	15.2	209.4	9.3	17.9	107.4	469.3	305.4	746.3	13.4	151.4	91	90
INDUSTRY 3568, POWER TRANSMISSION EQUIPMENT, N.E.C.															
1992 Census	270	311	171	21.8	679.0	14.6	29.6	386.3	1 493.0	922.0	2 411.4	72.5	549.7	91	89
1991 ASM	(NA)	(NA)	(NA)	21.7	606.0	14.8	29.8	352.7	1 442.4	1 049.8	2 479.1	61.9	532.9	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	23.7	638.2	16.6	33.7	391.5	1 503.3	1 102.0	2 596.5	68.1	529.8	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	24.3	643.7	17.2	34.7	398.2	1 527.7	1 092.8	2 598.9	57.6	538.7	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	25.5	676.7	17.7	35.3	406.5	1 438.9	1 016.6	2 409.1	63.1	582.2	(NA)	(NA)
1987 Census	262	308	183	22.0	562.5	15.0	29.6	351.1	1 258.6	776.0	2 041.1	62.4	472.3	91	86
1986 ASM	(NA)	(NA)	(NA)	22.4	599.2	15.3	31.0	361.4	1 295.8	922.4	2 221.3	60.0	524.7	(NA)	(S)
1985 ASM	(NA)	(NA)	(NA)	23.7	611.6	16.3	33.1	374.6	1 325.5	996.3	2 343.0	81.8	553.7	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	25.7	623.3	18.2	36.2	394.1	1 366.2	1 019.4	2 357.5	83.6	604.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	22.7	497.0	15.8	29.3	302.7	980.0	686.5	1 672.8	48.4	499.3	(NA)	(NA)
1982 Census	242	293	194	26.9	553.0	18.0	33.1	335.2	1 144.1	763.1	1 926.8	74.7	508.5	90	84
1981 ASM	(NA)	(NA)	(NA)	30.9	643.7	21.9	41.9	409.6	1 322.7	908.5	2 227.6	65.5	500.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	33.7	616.0	23.7	45.7	393.3	1 284.7	883.2	2 156.0	96.5	516.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	35.6	614.2	26.2	51.8	414.5	1 308.1	863.6	2 139.1	56.4	504.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	34.0	536.1	24.9	49.1	361.9	1 154.5	721.5	1 839.0	54.6	462.7	(NA)	(NA)
1977 Census	184	226	163	32.5	464.8	23.8	45.8	306.8	1 009.1	650.2	1 626.0	50.3	418.8	82	74
INDUSTRY 3569, GENERAL INDUSTRIAL MACHINERY, N.E.C.															
1992 Census	965	1 028	426	41.5	1 308.4	23.3	47.1	548.9	3 229.4	2 316.8	5 526.1	180.1	1 040.7	89	89
1991 ASM	(NA)	(NA)	(NA)	48.1	1 382.8	28.3	55.9	630.4	2 897.0	2 496.6	5 331.1	305.2	1 159.4	(NA)	(NA)
1990 ASM	(NA)	(NA)	(NA)	47.0	1 353.1	27.3	56.6	605.5	2 992.8	2 423.0	5 364.7	171.7	1 047.7	(NA)	(NA)
1989 ASM	(NA)	(NA)	(NA)	47.4	1 249.2	27.1	58.0	588.7	2 818.5	2 169.7	4 886.4	164.4	1 044.1	(NA)	(NA)
1988 ASM	(NA)	(NA)	(NA)	41.4	1 072.7	24.8	49.7	506.7	2 621.1	1 872.4	4 420.5	100.2	903.8	(NA)	(NA)
1987 Census	1 159	1 219	444	40.6	1 013.7	23.6	47.5	467.5	2 236.0	1 614.6	3 840.4	105.2	794.4	91	86

[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.

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 3561, PUMPS AND PUMPING EQUIPMENT									
1992 Census	33 206	57	1 962	14.20	47	70	74 417	45	66.98
1991 ASM	30 902	55	1 947	13.42	48	70	71 587	43	66.81
1990 ASM	29 690	55	1 956	13.15	48	71	68 257	43	63.66
1989 ASM	28 799	55	1 990	12.71	48	72	63 626	45	58.61
1988 ASM	28 190	56	1 981	12.35	47	70	66 019	43	59.42
1987 Census	27 554	56	1 949	11.95	46	70	61 207	45	56.11

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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 3562, BALL AND ROLLER BEARINGS									
1992 Census	31 266	81	2 039	14.34	40	66	72 971	43	44.29
1991 ASM	28 798	81	1 923	13.85	38	64	66 992	43	42.79
1990 ASM	28 259	82	2 000	13.14	42	67	63 633	44	38.66
1989 ASM	28 345	82	2 084	12.70	42	68	65 870	43	38.50
1988 ASM	27 776	81	2 140	12.18	44	70	60 856	46	35.14
1987 Census	25 743	79	2 055	11.99	41	66	59 710	43	36.72
1986 ASM	25 031	79	2 000	11.71	39	66	56 247	45	35.64
1985 ASM	24 485	79	1 955	11.76	38	65	56 071	44	36.52
1984 ASM	24 210	80	1 962	11.43	43	70	52 406	46	33.31
1983 ASM	22 910	79	1 953	10.88	43	72	43 907	52	28.34
1982 Census	20 785	77	1 833	10.52	39	68	42 217	49	30.02
1981 ASM	20 477	80	1 958	9.95	43	71	42 238	48	27.12
1980 ASM	18 797	80	1 965	9.12	43	72	38 456	49	24.34
1979 ASM	17 917	81	2 026	8.46	46	74	35 189	51	21.48
1978 ASM	16 296	82	2 012	7.66	45	74	31 556	52	19.14
1977 Census	14 874	82	1 995	7.04	44	74	29 105	51	17.87
INDUSTRY 3563, AIR AND GAS COMPRESSORS									
1992 Census	33 226	58	2 030	13.95	51	69	88 453	38	75.54
1991 ASM	32 069	57	2 034	13.80	53	72	77 261	42	66.99
1990 ASM	31 351	55	2 030	13.38	54	74	72 241	43	64.59
1989 ASM	31 084	55	2 046	13.25	55	76	66 958	46	59.71
1988 ASM	29 183	56	2 029	12.68	54	75	63 746	46	56.56
1987 Census	27 387	52	1 976	12.19	53	74	59 458	46	57.76
1986 ASM	27 472	52	1 967	12.16	50	73	59 773	46	58.52
1985 ASM	25 422	55	1 925	11.49	48	70	58 101	44	55.02
1984 ASM	25 000	55	1 954	11.23	48	71	57 079	44	53.07
1983 ASM	23 134	53	1 877	11.05	49	72	51 424	45	52.02
1982 Census	22 305	54	1 971	10.09	52	74	46 230	48	43.11
1981 ASM	21 465	58	2 005	9.64	50	72	50 018	43	42.93
1980 ASM	19 490	60	2 020	8.65	49	71	47 393	41	39.42
1979 ASM	17 429	60	2 032	7.79	47	69	43 462	40	35.54
1978 ASM	16 298	60	2 015	7.51	46	69	40 957	40	33.77
1977 Census	14 550	60	2 000	6.68	46	68	35 797	41	29.99
INDUSTRY 3564, BLOWERS AND FANS									
1992 Census	27 842	67	1 994	11.30	45	69	63 381	44	47.22
1991 ASM	26 323	62	2 000	10.73	45	70	58 560	45	47.49
1990 ASM	26 166	61	2 018	10.72	47	73	54 859	48	44.83
1989 ASM	24 357	62	2 006	10.22	45	70	55 191	44	44.06
1988 ASM	22 857	67	2 006	9.60	45	69	54 190	42	40.28
1987 Census	22 121	65	2 037	9.48	44	68	51 710	43	39.34
1986 ASM	21 886	67	1 971	9.42	46	72	43 935	50	33.49
1985 ASM	20 534	68	1 887	9.03	44	69	45 733	45	35.87
1984 ASM	20 216	67	1 933	8.89	45	70	44 307	46	34.00
1983 ASM	19 731	63	1 929	8.60	45	70	42 224	47	34.71
1982 Census	18 577	64	1 948	8.23	46	71	38 926	48	31.18
1981 ASM	17 196	65	1 980	7.60	48	73	35 532	48	27.42
1980 ASM	15 581	66	1 937	7.07	50	75	31 184	50	24.23
1979 ASM	14 482	68	1 986	6.33	48	74	29 408	49	21.93
1978 ASM	13 838	68	1 990	5.95	47	73	28 203	49	20.97
1977 Census	12 743	66	1 973	5.71	46	71	27 739	46	21.16
INDUSTRY 3565, PACKAGING MACHINERY									
1992 Census	34 137	59	2 013	13.79	40	69	73 034	47	61.73
1991 ASM	33 356	57	2 051	13.99	42	70	68 075	49	57.90
1990 ASM	32 434	57	2 038	13.61	39	67	73 847	44	64.04
1989 ASM	29 753	60	2 029	12.65	38	66	66 111	45	54.70
1988 ASM	29 991	58	2 008	12.60	39	68	62 765	48	54.26
1987 Census	27 960	59	1 985	12.30	36	65	62 248	45	52.89
INDUSTRY 3566, SPEED CHANGERS, DRIVES, AND GEARS									
1992 Census	31 580	66	1 981	13.77	35	63	73 917	43	56.33
1991 ASM	29 622	67	2 009	12.84	37	63	69 424	43	51.69
1990 ASM	29 946	68	2 063	13.01	36	63	73 533	41	52.04
1989 ASM	28 802	69	2 024	12.97	38	65	64 093	45	45.75
1988 ASM	27 461	69	1 992	12.30	35	62	65 326	42	47.58
1987 Census	26 480	66	2 000	12.14	35	66	56 112	47	42.20
1986 ASM	27 259	67	2 026	11.95	35	66	56 701	48	41.63
1985 ASM	25 704	68	2 031	11.53	35	66	53 344	48	38.46
1984 ASM	24 515	67	2 036	10.89	36	68	49 981	49	36.64
1983 ASM	22 255	65	1 891	10.21	35	67	43 740	51	35.43
1982 Census	20 909	66	1 880	10.05	34	65	42 361	49	34.37
1981 ASM	20 611	68	2 006	9.29	38	67	45 070	46	32.81
1980 ASM	18 265	69	1 944	8.35	37	67	38 770	47	28.80
1979 ASM	17 141	70	2 015	7.69	38	67	38 661	44	27.39
1978 ASM	15 842	69	1 978	7.17	36	67	33 251	48	24.47
1977 Census	14 443	70	1 989	6.48	35	65	31 743	45	22.95

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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 3567, INDUSTRIAL FURNACES AND OVENS								
1992 Census	31 141	61	1 951	11.49	43	74	57 771	54	48.86
1991 ASM	26 989	62	2 028	10.40	43	71	53 714	50	42.53
1990 ASM	26 455	62	2 017	10.43	45	73	47 751	55	38.24
1989 ASM	25 949	64	2 000	10.35	45	73	51 485	50	40.36
1988 ASM	24 912	61	1 946	9.81	44	71	53 346	47	44.95
1987 Census	24 163	60	1 929	10.25	43	71	49 494	49	43.02
1986 ASM	23 227	55	1 905	10.01	45	73	44 630	52	42.96
1985 ASM	21 520	57	1 826	9.75	46	72	45 191	48	43.75
1984 ASM	20 816	59	1 897	8.99	43	69	47 803	44	42.59
1983 ASM	19 399	59	1 890	8.46	40	68	42 196	46	37.57
1982 Census	19 416	57	1 935	8.38	42	71	38 814	50	35.11
1981 ASM	17 976	60	1 891	7.98	44	71	38 515	47	33.68
1980 ASM	16 084	63	1 884	7.00	44	70	33 497	48	28.42
1979 ASM	14 949	64	1 894	6.54	44	70	32 011	47	26.33
1978 ASM	14 894	60	1 911	6.57	42	70	30 755	48	27.00
1977 Census	13 776	61	1 925	6.00	41	69	30 875	45	26.22
	INDUSTRY 3568, POWER TRANSMISSION EQUIPMENT, N.E.C.								
1992 Census	31 147	67	2 027	13.05	38	66	68 486	45	50.44
1991 ASM	27 926	68	2 014	11.84	42	67	66 470	42	48.40
1990 ASM	26 928	70	2 030	11.62	42	67	63 430	42	44.61
1989 ASM	26 490	71	2 017	11.48	42	67	62 868	42	44.03
1988 ASM	26 537	69	1 994	11.52	42	70	56 427	47	40.76
1987 Census	25 568	68	1 973	11.86	38	66	57 209	45	42.52
1986 ASM	26 750	68	2 026	11.66	42	69	57 848	46	41.80
1985 ASM	25 806	69	2 031	11.32	43	69	55 928	46	40.05
1984 ASM	24 253	71	1 989	10.89	43	70	53 160	46	37.74
1983 ASM	21 894	70	1 854	10.33	41	71	43 172	51	33.45
1982 Census	20 558	67	1 839	10.13	40	68	42 532	48	34.56
1981 ASM	20 832	71	1 913	9.78	41	70	42 806	49	31.57
1980 ASM	18 279	70	1 928	8.61	41	70	38 122	48	28.11
1979 ASM	17 253	74	1 977	8.00	40	69	36 744	47	25.25
1978 ASM	15 768	73	1 972	7.37	39	68	33 956	46	23.51
1977 Census	14 302	73	1 924	6.70	40	69	31 049	46	22.03
	INDUSTRY 3569, GENERAL INDUSTRIAL MACHINERY, N.E.C.								
1992 Census	31 528	56	2 021	11.65	42	66	77 817	41	68.56
1991 ASM	28 748	59	1 975	11.28	47	73	60 229	48	51.82
1990 ASM	28 789	58	2 073	10.70	45	70	63 677	45	52.88
1989 ASM	26 354	57	2 140	10.15	44	70	59 462	44	48.59
1988 ASM	25 911	60	2 004	10.20	42	67	63 312	41	52.74
1987 Census	24 968	58	2 013	9.84	42	68	55 074	45	47.07

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 3561, PUMPS AND PUMPING EQUIPMENT														
United States	**E1**	**430**	**231**	**36.9**	**1 225.3**	**20.9**	**41.0**	**582.1**	**2 746.0**	**2 473.1**	**5 268.4**	**155.0**	**35.2**	**2 154.5**
Alabama	E1	4	2	.1	2.6	.1	.1	1.5	6.9	3.1	10.1	.2	(NA)	(NA)
Arkansas	–	5	4	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	E	(D)
California	E1	61	31	4.0	141.0	2.4	4.6	62.9	294.9	345.3	644.8	16.8	4.4	251.1
Colorado	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Florida	E5	23	8	.5	14.2	.3	.6	7.1	26.4	23.2	49.2	1.6	E	(D)
Georgia	E2	14	8	1.1	28.5	.7	1.5	15.1	63.0	60.1	123.1	10.5	.8	42.7
Illinois	–	23	14	2.2	75.5	1.2	2.6	35.9	171.5	116.1	291.2	8.0	2.2	117.6
Indiana	E3	8	5	.8	24.0	.4	1.0	11.2	48.3	91.3	139.2	2.4	.9	46.5
Iowa	–	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Kansas	–	7	4	.6	17.4	.3	.5	6.5	27.4	42.1	71.5	1.6	E	(D)
Kentucky	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Louisiana	E1	13	4	.2	6.4	.1	.3	3.2	10.7	8.4	19.4	.4	.2	11.2
Maryland	E9	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	(NA)	(NA)
Massachusetts	–	7	6	.6	20.5	.3	.4	9.7	48.6	27.1	74.1	1.8	1.3	70.9
Michigan	E4	9	5	1.2	46.1	.6	1.2	13.4	92.7	47.1	141.5	5.8	1.0	80.2

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 3561, PUMPS AND PUMPING EQUIPMENT—Con.														
Minnesota	–	5	4	1.5	56.9	.9	1.6	32.9	181.0	100.7	281.5	(D)	1.5	135.2
Missouri	–	6	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	(NA)	(NA)
Nebraska	–	6	4	.4	10.0	.2	.6	5.4	20.7	36.9	58.5	.5	E	(D)
New Jersey	–	23	9	2.0	73.9	1.1	2.3	33.1	133.6	117.6	262.0	10.3	1.2	34.2
New York	–	16	11	2.2	74.3	1.2	2.3	37.2	194.5	215.9	415.1	17.5	2.2	177.4
North Carolina	E2	7	4	.4	12.6	.2	.4	5.0	30.6	22.1	53.6	1.6	E	(D)
Ohio	–	25	18	4.2	128.9	2.4	4.9	68.0	334.0	268.1	597.7	15.9	4.2	293.4
Oklahoma	E3	24	14	2.8	90.1	1.5	2.6	40.0	202.6	175.4	377.3	10.5	3.1	162.0
Oregon	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Pennsylvania	–	21	15	3.1	110.2	1.8	3.2	56.0	216.5	148.4	375.4	10.4	2.9	171.0
Rhode Island	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	7	4	.4	13.3	.2	.5	6.2	34.9	29.4	65.3	.8	F	(D)
Texas	E2	56	26	3.1	97.7	1.8	3.5	48.3	197.8	224.1	430.8	8.7	2.9	146.5
Utah	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Virginia	E9	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Washington	–	4	2	.1	7.4	.1	.2	3.1	21.1	9.8	31.6	(D)	(NA)	(NA)
West Virginia	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	–	11	6	1.3	40.5	.7	1.5	20.8	68.6	100.0	174.8	5.7	.9	74.9
INDUSTRY 3562, BALL AND ROLLER BEARINGS														
United States	**–**	**183**	**122**	**34.9**	**1 091.2**	**28.2**	**57.5**	**824.6**	**2 546.7**	**1 717.4**	**4 287.9**	**206.5**	**36.9**	**2 203.3**
Alabama	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
California	–	11	3	.4	13.0	.3	.7	9.8	30.0	16.5	47.8	(D)	.6	39.9
Connecticut	–	17	12	3.3	111.8	2.6	4.9	86.5	162.7	103.9	262.6	16.8	5.1	265.6
Georgia	–	9	7	2.1	56.1	1.8	3.8	42.5	139.8	97.4	242.7	7.7	G	(D)
Illinois	–	13	10	1.9	49.7	1.5	2.6	36.6	142.6	107.0	246.9	20.4	1.3	85.8
Indiana	–	10	9	2.1	67.8	1.6	3.4	46.6	175.6	84.2	255.1	6.1	2.1	124.3
Iowa	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	–	4	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.3	F	(D)
Michigan	–	10	5	1.0	39.0	.7	1.5	25.9	96.2	53.7	152.0	8.5	G	(D)
Missouri	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
New Hampshire	–	5	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	–	8	4	.4	16.4	.3	.6	7.1	26.8	23.0	50.8	(D)	.9	33.1
New York	–	16	8	2.3	75.5	1.8	3.9	48.9	143.2	76.1	211.4	8.3	2.4	141.6
North Carolina	–	9	7	1.4	40.0	1.2	2.4	31.1	92.4	86.0	178.7	10.2	G	(D)
Ohio	–	13	10	I	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Oklahoma	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Pennsylvania	–	14	9	1.8	60.1	1.4	3.0	43.7	191.8	115.2	321.4	11.5	G	(D)
South Carolina	–	14	13	5.0	126.8	4.2	8.9	99.9	387.9	239.2	627.4	38.3	4.9	264.1
Tennessee	–	8	6	1.6	46.4	1.3	2.6	33.9	163.2	82.7	245.0	7.2	G	(D)
Virginia	–	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
INDUSTRY 3563, AIR AND GAS COMPRESSORS														
United States	**E1**	**258**	**120**	**23.4**	**777.5**	**13.5**	**27.4**	**382.1**	**2 069.8**	**2 120.2**	**4 170.3**	**138.0**	**23.8**	**1 415.1**
Alabama	–	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(NA)
California	E1	25	11	.7	22.7	.4	.7	8.2	46.2	42.2	87.6	2.6	.6	31.9
Connecticut	–	4	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	F	(D)
Florida	E4	11	3	.1	4.0	.1	.1	1.7	9.9	5.4	14.8	.2	(NA)	(D)
Illinois	–	24	9	3.1	107.8	2.0	4.0	58.3	227.5	126.2	363.7	12.3	3.5	190.3
Indiana	E1	13	10	.8	20.0	.5	1.0	10.3	61.9	99.3	163.6	1.8	1.1	60.8
Kentucky	E2	7	4	1.2	34.8	.8	1.6	21.1	92.2	120.5	212.2	(D)	F	(D)
Massachusetts	–	3	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Michigan	E7	9	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.0	113.3
Minnesota	–	8	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Missouri	–	5	3	.3	11.3	.2	.5	7.3	63.2	33.7	94.9	(D)	.4	39.4
New Hampshire	E6	4	3	.2	4.8	.1	.2	2.2	6.1	14.6	20.4	.3	(NA)	(NA)
New Jersey	–	9	4	.9	36.5	.4	.8	14.6	86.4	50.8	140.1	(D)	.6	29.6
New York	–	13	10	3.7	119.5	2.4	5.2	74.7	360.6	413.4	772.4	(D)	4.0	243.2
North Carolina	–	6	4	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Ohio	E2	13	8	2.3	81.9	1.2	2.3	36.9	244.4	133.5	367.5	(D)	2.8	158.8
Oklahoma	–	10	4	.4	13.6	.2	.5	5.2	19.2	58.4	86.5	3.0	.4	30.6
Pennsylvania	–	17	11	3.2	117.2	1.8	3.8	57.6	322.2	188.4	485.2	16.7	2.5	131.7
Tennessee	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	E1	33	12	1.2	39.3	.7	1.5	19.3	90.0	95.7	182.6	2.2	.9	49.9
Virginia	–	3	3	.2	5.8	.1	.3	2.6	17.4	24.1	40.8	.7	(NA)	(NA)
Wisconsin	–	6	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(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 3564, BLOWERS AND FANS														
United States	**E1**	**587**	**257**	**26.0**	**723.9**	**17.5**	**34.9**	**394.5**	**1 647.9**	**1 339.0**	**3 000.9**	**60.7**	**24.8**	**1 282.4**
Alabama	–	12	7	.6	15.0	.4	.7	7.1	25.6	23.7	49.6	.6	.4	14.7
Arkansas	–	3	3	.3	7.3	.3	.6	5.6	16.9	15.0	31.4	.6	(NA)	(D)
California	E2	72	28	2.0	58.7	1.3	2.5	31.5	139.7	96.7	243.8	2.6	2.1	89.0
Colorado	E1	11	1	.1	3.2	.1	.2	1.9	6.1	6.6	12.6	.2	(NA)	(NA)
Florida	–	25	7	.8	18.1	.6	1.1	12.3	39.3	37.3	76.6	1.5	.5	19.6
Georgia	–	10	6	.4	10.9	.2	.5	3.3	18.8	55.1	74.5	1.7	.2	11.1
Illinois	E1	46	20	2.0	52.7	1.4	2.7	29.2	121.0	102.4	225.6	4.9	1.8	93.2
Indiana	–	15	9	1.4	47.0	1.0	1.9	27.5	84.9	43.0	128.4	2.7	G	(D)
Iowa	–	7	3	.1	2.3	.1	.2	1.4	7.6	5.0	12.3	.1	.2	10.7
Kansas	E4	9	3	.5	16.4	.3	.7	8.2	44.6	41.1	86.2	(D)	E	(D)
Kentucky	–	12	10	.9	23.5	.7	1.3	14.5	61.9	49.4	111.6	1.4	F	(D)
Maryland	E5	9	4	.9	31.0	.4	.7	11.8	72.2	52.9	124.5	3.1	F	(D)
Massachusetts	E2	14	3	.2	7.3	.2	.3	4.4	21.2	17.1	38.3	1.1	E	(D)
Michigan	–	27	17	1.1	30.9	.7	1.4	15.4	58.7	52.9	111.7	1.9	F	(D)
Minnesota	E2	19	7	.4	10.7	.3	.5	5.9	25.9	18.4	44.1	.5	F	(D)
Missouri	E1	10	5	.6	15.6	.4	.9	9.4	38.0	23.7	61.6	(D)	1.0	48.5
New Jersey	–	13	6	.4	12.9	.3	.5	5.7	34.9	36.6	70.2	1.1	1.1	47.3
New York	E1	20	10	1.7	56.0	1.0	1.8	26.5	117.8	79.6	199.9	5.3	2.2	116.4
North Carolina	E1	29	15	1.9	41.6	1.5	3.0	25.4	91.2	70.6	163.8	1.7	2.0	81.1
Ohio	E1	38	24	2.7	79.0	1.8	3.7	41.8	159.0	153.8	314.4	5.1	2.8	142.5
Oklahoma	–	13	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	F	(D)
Oregon	–	10	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Pennsylvania	–	32	14	1.4	43.4	.9	1.7	19.8	95.9	88.3	184.3	2.5	1.3	99.4
South Carolina	E3	7	3	.2	3.3	.1	.2	2.0	6.4	5.6	11.4	.6	(NA)	(NA)
South Dakota	–	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Tennessee	E1	14	7	.4	11.1	.3	.6	6.6	16.8	17.1	34.6	.4	E	(D)
Texas	–	44	15	1.3	23.0	.9	1.9	13.2	57.7	58.3	115.8	2.3	.8	36.1
Utah	E1	4	2	.1	2.1	.1	.2	1.6	4.9	3.7	8.6	(D)	(NA)	(NA)
Virginia	–	7	5	.6	11.5	.4	.9	7.4	68.1	35.3	104.5	1.0	E	(D)
Wisconsin	–	14	7	1.1	34.8	.7	1.4	21.5	92.6	63.4	155.5	2.7	.7	47.4
INDUSTRY 3565, PACKAGING MACHINERY														
United States	**E1**	**631**	**264**	**26.2**	**894.4**	**15.4**	**31.0**	**427.6**	**1 913.5**	**1 252.4**	**3 126.9**	**70.1**	**22.6**	**1 406.8**
Alabama	–	5	2	.1	3.4	.1	.2	1.9	5.0	3.2	8.6	.1	(NA)	(NA)
California	E1	87	28	3.0	107.9	1.8	3.7	55.0	224.4	118.3	339.1	6.2	2.1	110.8
Colorado	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Connecticut	–	14	5	.4	17.4	.2	.5	7.2	21.6	22.5	44.7	(D)	E	(D)
Florida	–	31	20	1.2	40.6	.7	1.6	18.7	84.3	51.5	133.1	2.5	1.1	52.3
Georgia	–	18	8	.8	28.4	.5	1.0	13.4	57.5	47.7	111.3	2.4	.6	34.7
Illinois	E1	58	27	2.9	96.3	1.7	3.1	42.0	234.3	170.0	403.5	6.8	3.2	222.6
Indiana	E1	11	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Iowa	–	7	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kansas	–	4	3	.1	3.7	.1	.2	2.0	8.4	4.8	12.9	.1	(NA)	(NA)
Kentucky	–	5	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Louisiana	–	4	2	.2	7.7	.2	.4	5.4	16.9	7.7	23.0	(D)	(NA)	(D)
Maryland	E5	6	3	.7	28.8	.4	1.0	14.7	62.1	31.4	87.1	1.2	F	(D)
Massachusetts	E3	18	7	1.0	33.9	.6	1.2	15.0	59.7	30.7	90.3	1.8	.7	34.1
Michigan	–	20	6	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Minnesota	E1	22	11	1.5	49.1	.9	1.8	23.0	70.4	78.1	155.3	3.9	G	(D)
Missouri	E8	10	4	.4	12.5	.2	.6	6.6	19.3	27.9	47.2	(D)	(NA)	(NA)
New Hampshire	E5	5	2	.2	6.7	.1	.2	3.1	14.3	13.1	28.1	.2	(NA)	(D)
New Jersey	E2	44	22	1.3	49.2	.7	1.4	19.7	89.1	58.1	146.4	2.8	2.0	104.5
New York	E2	36	11	1.0	30.2	.6	1.3	15.9	60.3	40.0	100.8	.9	G	(D)
North Carolina	–	15	3	.3	13.0	.2	.4	7.4	31.7	14.8	45.2	1.7	E	(D)
Ohio	–	43	21	2.7	93.1	1.6	3.1	41.3	299.1	150.6	434.9	8.4	2.3	234.8
Pennsylvania	–	30	14	.8	27.8	.5	1.0	13.7	60.0	39.3	100.3	1.1	F	(D)
South Carolina	–	10	5	.7	19.2	.4	.8	11.4	39.7	62.8	97.7	1.6	.7	48.6
Texas	E1	24	12	.7	20.4	.4	.7	8.4	39.3	22.9	61.7	.8	.4	23.7
Virginia	–	6	4	.1	5.3	.1	.2	2.6	10.5	3.7	14.2	(D)	(NA)	(NA)
Washington	E1	22	8	.8	22.0	.5	.9	11.3	46.1	26.1	71.1	1.7	.9	70.4
Wisconsin	–	41	19	2.8	92.0	1.5	3.1	42.0	187.0	135.8	313.9	13.8	1.9	105.5

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	E[1]	1992											1987	
		All establishments		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)	All employees[2] (1,000)	Value added by manufacture (million dollars)
		Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						
INDUSTRY 3566, SPEED CHANGERS, DRIVES, AND GEARS														
United States	**–**	**287**	**145**	**15.7**	**495.8**	**10.4**	**20.6**	**283.7**	**1 160.5**	**646.3**	**1 823.1**	**69.8**	**17.9**	**1 004.4**
California	–	27	8	.7	26.1	.4	.8	12.6	53.3	39.5	95.9	1.6	.5	21.4
Colorado	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Florida	E4	7	4	.2	4.7	.1	.3	2.9	10.4	5.9	16.0	.4	(NA)	(NA)
Illinois	–	35	20	2.2	76.5	1.5	3.3	45.5	146.4	87.4	231.1	8.3	2.4	120.3
Indiana	–	5	5	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Iowa	–	5	3	.2	4.4	.1	.2	2.6	7.1	5.2	11.8	(D)	(NA)	(NA)
Kansas	–	4	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Massachusetts	–	14	9	.5	15.9	.3	.6	8.1	30.9	12.6	44.2	1.9	1.0	56.8
Michigan	–	20	11	.8	28.4	.6	1.3	15.5	65.3	26.5	91.7	2.8	.8	47.4
Minnesota	–	12	5	.4	13.5	.3	.6	8.0	27.2	15.0	43.2	3.7	F	(D)
Missouri	E6	12	7	.6	16.5	.5	1.0	10.5	29.9	28.8	58.9	2.5	.7	29.7
New Jersey	E3	12	6	.4	14.5	.2	.5	7.4	27.1	18.8	46.9	.6	.7	39.3
New York	E3	19	8	1.0	25.6	.6	1.3	14.7	53.4	22.0	75.2	3.6	G	(D)
North Carolina	–	10	9	.6	16.9	.4	.8	9.3	62.2	22.1	85.0	2.8	E	(D)
Ohio	E1	26	13	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.7	G	(D)
Pennsylvania	–	16	6	.9	32.6	.6	1.1	14.1	67.4	38.4	107.1	4.6	1.4	63.2
South Carolina	–	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	52.3
South Dakota	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Texas	–	12	5	.3	9.4	.2	.5	5.3	26.6	17.8	43.8	2.8	.2	8.9
Virginia	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Washington	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	–	17	9	2.1	63.8	1.3	2.4	36.5	187.9	76.2	272.7	9.4	2.4	151.9
INDUSTRY 3567, INDUSTRIAL FURNACES AND OVENS														
United States	**E1**	**409**	**181**	**17.0**	**529.4**	**10.3**	**20.1**	**230.9**	**982.1**	**764.2**	**1 757.7**	**27.6**	**16.6**	**821.6**
Alabama	–	4	3	.2	7.1	.1	.2	2.5	10.2	11.4	23.7	(D)	.3	14.5
California	–	48	19	2.0	70.4	1.2	2.1	25.6	123.2	114.7	237.0	(D)	1.8	91.1
Connecticut	E6	7	2	.2	4.5	.1	.3	2.7	9.5	8.4	17.9	(D)	.2	11.5
Illinois	–	29	13	1.3	38.4	.8	1.5	15.7	64.9	47.1	110.8	1.0	1.3	65.0
Indiana	–	10	3	.4	10.5	.2	.4	4.8	20.2	11.8	31.3	.8	E	(D)
Kansas	–	7	4	.3	6.6	.2	.4	3.1	13.2	11.4	25.2	.2	(NA)	(NA)
Kentucky	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maine	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Massachusetts	E2	15	6	.9	31.3	.5	1.0	10.9	45.5	42.3	91.1	1.1	1.2	42.5
Michigan	–	40	17	1.4	46.5	.8	1.7	22.9	90.5	66.2	157.9	3.1	1.2	61.2
Minnesota	–	8	5	.6	20.8	.3	.5	7.0	30.5	26.7	58.0	.5	E	(D)
Missouri	–	15	12	1.6	36.6	1.2	2.2	20.1	77.1	23.9	100.8	(D)	1.0	38.5
Nebraska	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Hampshire	E8	5	3	.2	7.6	.1	.2	2.4	15.9	10.4	26.5	.3	E	(D)
New Jersey	E1	24	11	1.0	38.3	.5	.9	12.5	77.4	54.8	134.5	2.4	.9	53.3
New York	E3	16	8	.5	14.5	.3	.6	7.0	28.5	20.2	50.8	(D)	.9	29.9
North Carolina	–	9	6	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Ohio	–	38	15	1.2	39.2	.6	1.3	20.5	72.4	71.1	143.6	1.1	1.5	73.8
Oklahoma	–	8	4	.5	18.9	.2	.5	6.6	13.6	23.0	36.4	(D)	(NA)	(D)
Pennsylvania	E1	34	17	1.3	41.5	.6	1.4	15.5	77.8	82.2	164.2	1.6	1.7	88.7
Rhode Island	–	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	12.9
South Carolina	–	5	1	.1	3.0	.1	.1	1.2	5.7	5.3	11.1	(D)	(NA)	(D)
Tennessee	–	5	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	24.7
Texas	–	15	4	.2	6.5	.1	.3	2.9	11.4	9.9	21.6	.2	(NA)	(D)
Utah	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Wisconsin	E1	17	9	.9	28.2	.5	1.1	13.6	54.5	32.1	86.2	2.0	.7	41.0
INDUSTRY 3568, POWER TRANSMISSION EQUIPMENT, N.E.C.														
United States	**–**	**311**	**171**	**21.8**	**679.0**	**14.6**	**29.6**	**386.3**	**1 493.0**	**922.0**	**2 411.4**	**72.5**	**22.0**	**1 258.6**
Alabama	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	E3	24	9	.8	21.7	.6	1.1	12.9	45.3	24.7	71.6	.8	1.1	58.4
Colorado	–	2	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Connecticut	E3	12	6	.7	20.2	.5	.8	9.3	42.6	19.5	63.8	1.1	.7	37.9
Georgia	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	.4	27.2
Illinois	–	29	19	3.2	103.1	2.0	4.0	53.5	222.6	120.7	345.2	17.0	3.4	223.3
Indiana	–	12	7	1.5	45.1	1.0	2.1	28.0	87.7	37.8	121.8	2.2	1.1	51.2
Iowa	E9	4	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Kentucky	–	1	1	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Maryland	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	E1	11	4	.6	17.5	.3	.6	11.2	18.7	16.3	40.5	1.5	F	(D)
Michigan	–	25	15	1.3	40.7	.9	1.8	27.3	88.0	73.5	161.8	4.3	1.7	115.1
Minnesota	E1	6	5	.3	10.5	.2	.5	6.4	17.7	12.1	29.7	2.1	E	(D)
Missouri	–	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Nebraska	–	5	4	.3	8.7	.2	.4	4.8	20.4	18.9	39.1	.8	.2	9.8
New Hampshire	E7	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	E1	15	6	.5	13.7	.3	.6	7.9	32.3	17.8	50.5	.7	.4	21.4
New York	–	19	8	1.2	33.5	.8	1.6	20.0	79.3	38.8	118.5	3.0	F	(D)
North Carolina	–	9	7	.8	19.5	.7	1.2	13.2	50.9	37.2	86.7	2.7	F	(D)
Ohio	–	29	21	1.9	63.4	1.2	2.5	34.6	153.1	105.0	249.0	5.0	1.6	100.0

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 3568, POWER TRANSMISSION EQUIPMENT, N.E.C.—Con.														
Oregon	–	4	3	.2	6.4	.2	.4	4.1	12.0	6.9	18.6	.4	.2	9.7
Pennsylvania	–	11	8	1.0	34.3	.7	1.2	18.0	75.3	28.8	103.2	6.2	1.3	75.1
Tennessee	–	8	3	.6	15.7	.4	.7	7.2	33.9	23.6	57.2	(D)	E	(D)
Texas	E1	21	9	1.1	25.9	.8	1.8	15.1	58.5	44.2	103.9	.8	G	(D)
Vermont	–	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	–	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Wisconsin	–	23	13	2.2	79.2	1.6	3.3	54.4	188.2	107.3	294.2	10.3	2.1	140.6
INDUSTRY 3569, GENERAL INDUSTRIAL MACHINERY, N.E.C.														
United States	**E1**	**1 028**	**426**	**41.5**	**1 308.4**	**23.3**	**47.1**	**548.9**	**3 229.4**	**2 316.8**	**5 526.1**	**180.1**	**40.6**	**2 236.0**
Alabama	–	9	4	.3	9.0	.2	.5	6.5	18.9	13.6	35.1	(D)	.2	10.2
Arizona	–	6	3	.2	5.4	.1	.3	2.3	9.5	6.8	18.5	(D)	(NA)	(NA)
Arkansas	–	6	3	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	E1	111	47	3.7	118.7	2.0	4.0	46.1	267.1	188.6	445.4	15.8	4.0	197.0
Colorado	–	7	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	7.2
Connecticut	–	33	13	1.2	40.8	.6	1.4	15.8	88.8	49.0	138.2	7.4	1.6	83.2
Delaware	–	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Florida	E1	38	16	1.9	56.6	1.1	2.2	27.4	151.5	86.5	244.2	8.7	1.3	74.2
Georgia	–	15	6	.6	14.9	.4	.7	7.1	31.0	36.8	70.5	.6	.9	53.2
Idaho	–	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	E1	75	32	2.5	73.4	1.6	3.3	33.6	159.0	141.6	300.0	9.1	2.8	168.6
Indiana	–	32	19	1.6	45.1	1.1	2.2	21.6	104.2	81.6	184.9	3.7	1.3	84.0
Iowa	–	5	3	.3	7.2	.2	.4	3.7	16.1	20.4	36.2	.4	.3	15.8
Kansas	–	9	6	.4	9.3	.3	.5	5.3	18.6	10.3	28.6	.5	.3	10.5
Kentucky	E1	11	4	.9	19.4	.6	1.4	10.0	41.4	43.9	84.0	1.8	F	(D)
Louisiana	E2	9	3	.2	4.4	.1	.2	2.1	9.6	8.5	18.0	.1	.2	11.0
Maryland	E5	12	4	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	27.2
Massachusetts	E5	33	11	1.3	44.8	.8	1.5	22.6	136.3	112.2	255.1	5.4	3.2	146.0
Michigan	–	90	25	3.6	128.3	1.8	3.6	43.7	324.3	232.5	547.5	11.4	3.4	190.9
Minnesota	E1	27	12	1.2	37.2	.7	1.2	16.3	113.7	60.5	171.9	7.4	F	(D)
Missouri	–	11	6	.3	10.3	.2	.4	3.9	23.3	15.7	38.4	(D)	.3	23.5
New Hampshire	–	6	5	1.2	41.5	.6	1.2	13.8	131.6	44.4	173.0	(D)	G	(D)
New Jersey	–	47	22	1.7	59.4	.9	1.9	24.1	117.9	91.6	207.3	3.6	2.3	130.3
New York	–	48	25	4.4	136.5	2.0	3.6	50.2	247.1	189.8	431.9	36.3	(NA)	(D)
North Carolina	–	27	16	1.4	39.8	.9	1.8	18.2	99.6	69.2	173.5	4.8	1.2	78.6
Ohio	–	66	23	1.6	49.6	.8	1.6	17.4	115.1	101.5	217.8	2.7	1.6	77.6
Oklahoma	–	18	5	.4	10.7	.2	.4	4.6	23.1	18.6	41.3	1.0	.4	15.6
Oregon	–	16	5	.3	9.2	.1	.3	3.3	28.0	10.2	38.5	1.3	(NA)	(NA)
Pennsylvania	E1	52	26	2.8	100.8	1.5	3.4	48.9	229.0	203.2	437.7	23.0	3.0	184.2
Rhode Island	–	8	4	.2	5.2	.1	.2	2.0	12.3	6.9	19.0	(D)	(NA)	(NA)
South Dakota	–	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	–	19	7	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	4.4	.3	11.9
Texas	–	63	21	1.8	47.3	1.2	2.5	25.5	103.9	93.9	195.7	3.3	1.7	93.7
Vermont	–	6	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Virginia	–	20	7	.6	14.6	.4	.7	7.3	33.2	26.9	60.5	3.2	.3	23.4
Washington	–	16	7	.5	14.7	.2	.4	5.1	45.6	23.3	68.8	(D)	(NA)	(NA)
Wisconsin	–	36	20	1.5	45.3	.9	1.7	20.1	108.5	77.5	185.7	4.0	1.1	85.1

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	Pumps and pumping equipment (SIC 3561)	Ball and roller bearings (SIC 3562)	Air and gas compressors (SIC 3563)	Blowers and fans (SIC 3564)	Packaging machinery (SIC 3565)	Speed changers, drives, and gears (SIC 3566)	Industrial furnaces and ovens (SIC 3567)	Power transmission equipment, n.e.c. (SIC 3568)	General industrial machinery, n.e.c. (SIC 3569)
Companies—number	354	122	220	517	590	256	377	270	965
All establishments—number	430	183	258	587	631	287	409	311	1 028
With 1 to 19 employees—number	199	61	138	330	367	142	228	140	602
With 20 to 99 employees—number	129	45	66	177	200	108	133	107	320
With 100 employees or more—number	102	77	54	80	64	37	48	64	106

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	Pumps and pumping equipment (SIC 3561)	Ball and roller bearings (SIC 3562)	Air and gas compressors (SIC 3563)	Blowers and fans (SIC 3564)	Packaging machinery (SIC 3565)	Speed changers, drives, and gears (SIC 3566)	Industrial furnaces and ovens (SIC 3567)	Power transmission equipment, n.e.c. (SIC 3568)	General industrial machinery, n.e.c. (SIC 3569)
Employment and labor costs:									
Employees, 1,000	36.9	34.9	23.4	26.0	26.2	15.7	17.0	21.8	41.5
Compensation, total, mil dol	1 555.3	1 448.4	999.8	903.1	1 099.3	638.4	663.0	867.4	1 622.3
Annual payroll, mil dol	1 225.3	1 091.2	777.5	723.9	894.4	495.8	529.4	679.0	1 308.4
Fringe benefits, mil dol	330.0	357.2	222.3	179.2	204.9	142.6	133.7	188.4	313.9
Social Security and other legally required payments, mil dol	129.9	116.1	78.6	75.6	82.9	50.4	58.8	67.4	125.7
Employer voluntary payments, mil dol	200.1	241.1	143.7	103.5	122.0	92.2	74.8	121.0	188.1
Production workers:									
Average for year, 1,000	20.9	28.2	13.5	17.5	15.4	10.4	10.3	14.6	23.3
March, 1,000	21.3	28.6	13.8	17.4	15.6	10.4	10.4	14.6	23.6
May, 1,000	21.1	27.9	13.5	17.6	15.5	10.5	10.4	14.8	23.6
August, 1,000	20.6	28.1	13.3	17.7	15.4	10.5	10.2	14.6	23.5
November, 1,000	20.6	28.0	13.3	17.1	15.3	10.3	10.0	14.6	22.8
Hours, millions	41.0	57.5	27.4	34.9	31.0	20.6	20.1	29.6	47.1
Wages, mil dol	582.1	824.6	382.1	394.5	427.6	283.7	230.9	386.3	548.9
Cost of materials[1], mil dol	2 473.1	1 717.4	2 120.2	1 339.0	1 252.4	646.3	764.2	922.0	2 316.8
Materials, parts, containers, etc., consumed[2], mil dol	2 129.4	1 499.0	1 629.9	1 189.8	1 062.6	539.6	673.4	740.5	1 951.6
Resales, mil dol	238.7	70.5	282.3	74.0	115.4	47.9	33.7	102.9	226.4
Fuels, mil dol	10.1	25.3	9.9	8.0	4.7	5.6	4.6	8.7	14.5
Purchased electricity, mil dol	47.3	81.0	28.2	21.9	18.6	21.7	15.6	31.4	44.4
Contract work, mil dol	47.5	41.6	169.8	45.2	51.1	31.6	37.0	38.5	79.9
Quantity of electric energy used for heat and power:									
Purchased, mil kWh	709.4	1 584.3	458.6	344.0	278.3	356.5	219.9	519.7	680.2
Generated less sold, mil kWh	(D)	–	(D)	–	–	–	(D)	(D)	–
Total value of shipments, mil dol	5 268.4	4 287.9	4 170.3	3 000.9	3 126.9	1 823.1	1 757.7	2 411.4	5 526.1
Value added, mil dol	2 746.0	2 546.7	2 069.8	1 647.9	1 913.5	1 160.5	982.1	1 493.0	3 229.4
Inventories by stage of fabrication:									
Beginning of 1992, mil dol	1 262.4	921.6	971.3	371.5	696.0	431.7	320.6	552.8	1 017.8
Finished goods, mil dol	554.2	340.7	446.4	84.9	222.4	176.4	41.5	272.9	359.1
Work in process, mil dol	379.1	323.9	328.1	116.7	249.0	165.1	131.7	160.4	303.8
Materials and supplies, mil dol	329.2	257.0	196.7	169.9	224.6	90.2	147.4	119.6	355.0
End of 1992, mil dol	1 220.0	889.8	1 007.4	361.0	753.0	406.3	306.9	549.7	1 040.7
Finished goods, mil dol	519.7	315.4	458.2	80.8	236.2	172.5	43.0	288.2	373.6
Work in process, mil dol	364.2	325.5	336.0	106.8	274.3	152.7	118.8	148.7	309.4
Materials and supplies, mil dol	336.1	248.9	213.1	173.5	242.5	81.1	145.1	112.8	357.7

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	Pumps and pumping equipment (SIC 3561)	Ball and roller bearings (SIC 3562)	Air and gas compressors (SIC 3563)	Blowers and fans (SIC 3564)	Packaging machinery (SIC 3565)	Speed changers, drives, and gears (SIC 3566)	Industrial furnaces and ovens (SIC 3567)	Power transmission equipment, n.e.c. (SIC 3568)	General industrial machinery, n.e.c. (SIC 3569)
Gross book value of depreciable assets:									
Total:									
Beginning of year	1 909.4	3 231.8	1 205.0	825.1	893.4	941.6	475.2	1 075.3	1 696.7
New capital expenditures[1]	155.0	206.5	138.0	60.7	70.1	69.8	27.6	72.5	180.1
Used capital expenditures	16.7	23.5	6.6	6.3	4.4	12.7	2.5	5.6	12.8
Retirements	43.5	58.8	36.8	25.4	37.2	28.2	29.5	44.7	37.5
End of year	2 037.6	3 403.0	1 312.9	866.7	930.7	995.8	475.8	1 108.7	1 852.1
Buildings and other structures:									
Beginning of year	443.5	584.9	311.4	236.4	245.0	173.5	142.5	226.3	493.4
New capital expenditures	24.8	12.4	36.0	10.6	18.6	20.1	5.2	10.2	53.7
Used capital expenditures	7.0	1.3	2.1	1.1	2.1	.9	1.1	.5	2.7
Retirements	2.7	.8	7.7	1.0	1.4	1.2	6.8	4.8	4.9
End of year	472.7	597.7	341.8	247.1	264.3	193.3	142.0	232.2	544.8
Machinery and equipment:									
Beginning of year	1 465.9	2 647.0	893.6	588.7	648.4	768.1	332.7	849.0	1 203.3
New capital expenditures[1]	130.1	194.2	102.1	50.0	51.4	49.7	22.4	62.3	126.4
Used capital expenditures	9.7	22.2	4.5	5.1	2.3	11.8	1.4	5.1	10.1
Retirements	40.8	58.0	29.1	24.3	35.8	27.0	22.7	39.9	32.6
End of year	1 564.9	2 805.3	971.1	619.6	666.4	802.6	333.8	876.5	1 307.3
Depreciation charges during 1992:									
Total	138.7	218.8	84.8	60.6	77.0	66.2	39.1	92.5	146.1
Buildings and other structures	22.0	35.0	15.0	10.2	17.0	7.4	7.4	15.2	25.5
Machinery and equipment	116.7	183.9	69.8	50.4	60.0	58.8	31.7	77.4	120.6
Rental payments:									
Total	38.9	16.6	26.0	30.7	35.1	20.3	25.1	20.0	62.4
Buildings and other structures	24.9	6.4	12.4	20.5	21.4	10.2	16.5	11.8	36.9
Machinery and equipment	14.1	10.2	13.6	10.2	13.6	10.2	8.6	8.3	25.5

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

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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	Pumps and pumping equipment (SIC 3561)		Ball and roller bearings (SIC 3562)		Air and gas compressors (SIC 3563)		Blowers and fans (SIC 3564)	
	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	8.7	(X)	10.9	(X)	7.6	(X)	4.0	(X)
Response coverage ratio (percent)[2]	83.1	(X)	95.7	(X)	81.6	(X)	84.7	(X)
Machinery	30.8	(X)	108.2	(X)	23.6	(X)	10.2	(X)
Response coverage ratio (percent)[2]	83.1	(X)	95.7	(X)	83.6	(X)	85.7	(X)
Other purchased services:								
Communications	17.2	(X)	6.0	(X)	9.9	(X)	10.7	(X)
Response coverage ratio (percent)[2]	81.6	(X)	94.6	(X)	82.0	(X)	84.5	(X)
Legal	6.3	(X)	2.9	(X)	6.8	(X)	11.8	(X)
Response coverage ratio (percent)[2]	77.8	(X)	94.9	(X)	83.6	(X)	85.8	(X)
Accounting and bookkeeping	3.3	(X)	1.4	(X)	2.3	(X)	3.5	(X)
Response coverage ratio (percent)[2]	76.6	(X)	94.0	(X)	82.5	(X)	85.8	(X)
Advertising	29.5	(X)	1.3	(X)	18.4	(X)	16.6	(X)
Response coverage ratio (percent)[2]	79.5	(X)	94.7	(X)	83.6	(X)	86.3	(X)
Software and other data processing	7.2	(X)	4.0	(X)	7.2	(X)	4.0	(X)
Response coverage ratio (percent)[2]	75.8	(X)	94.9	(X)	82.6	(X)	86.3	(X)
Refuse removal, including hazardous waste	5.4	(X)	14.2	(X)	3.2	(X)	3.2	(X)
Response coverage ratio (percent)[2]	79.6	(X)	95.7	(X)	81.5	(X)	86.3	(X)
New machinery and equipment expenditures	130.1	(X)	194.2	(X)	102.1	(X)	50.0	(X)
Automobiles, trucks, etc., for highway use	3.5	8	.3	37	1.3	9	8.1	65
Computers and peripheral data processing equipment	14.2	7	3.7	31	10.0	7	6.1	24
All other	112.4	1	190.1	1	90.7	1	35.9	12
Adjustment ratio[3]	1.2	(X)	.7	(X)	1.1	(X)	1.3	(X)
Cost of materials, components, parts, etc., used	2 129.4	(X)	1 499.0	(X)	1 629.9	(X)	1 189.8	(X)
Materials purchased or transferred from foreign sources[4]	127.3	21	438.3	38	209.2	11	18.6	15
Materials purchased or transferred from domestic sources	2 002.1	2	1 060.7	16	1 420.7	3	1 171.2	1
Adjustment ratio[3]	1.6	(X)	1.0	(X)	1.6	(X)	1.9	(X)

Item	Packaging machinery (SIC 3565)		Speed changers, drives, and gears (SIC 3566)		Industrial furnaces and ovens (SIC 3567)		Power transmission equipment, n.e.c. (SIC 3568)		General industrial machinery, n.e.c. (SIC 3569)	
	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	3.9	(X)	3.9	(X)	2.9	(X)	3.5	(X)	8.2	(X)
Response coverage ratio (percent)[2]	67.2	(X)	86.7	(X)	75.6	(X)	90.1	(X)	76.1	(X)
Machinery	8.3	(X)	18.4	(X)	6.8	(X)	15.3	(X)	20.4	(X)
Response coverage ratio (percent)[2]	69.8	(X)	90.4	(X)	86.0	(X)	90.1	(X)	76.1	(X)
Other purchased services:										
Communications	10.2	(X)	4.9	(X)	7.3	(X)	5.0	(X)	25.9	(X)
Response coverage ratio (percent)[2]	69.4	(X)	90.4	(X)	83.5	(X)	86.6	(X)	73.1	(X)
Legal	11.8	(X)	3.7	(X)	5.2	(X)	2.4	(X)	16.2	(X)
Response coverage ratio (percent)[2]	72.0	(X)	86.0	(X)	84.6	(X)	90.1	(X)	77.5	(X)
Accounting and bookkeeping	4.1	(X)	1.4	(X)	3.2	(X)	1.6	(X)	10.3	(X)
Response coverage ratio (percent)[2]	72.0	(X)	84.9	(X)	86.0	(X)	88.4	(X)	76.3	(X)
Advertising	17.6	(X)	8.5	(X)	8.9	(X)	6.8	(X)	60.3	(X)
Response coverage ratio (percent)[2]	70.0	(X)	87.8	(X)	84.5	(X)	88.4	(X)	76.1	(X)
Software and other data processing	4.6	(X)	2.7	(X)	1.8	(X)	4.1	(X)	8.4	(X)
Response coverage ratio (percent)[2]	67.7	(X)	90.4	(X)	77.0	(X)	87.9	(X)	75.2	(X)
Refuse removal, including hazardous waste	2.2	(X)	2.6	(X)	1.5	(X)	2.6	(X)	5.7	(X)
Response coverage ratio (percent)[2]	68.8	(X)	87.8	(X)	82.6	(X)	86.8	(X)	72.2	(X)
New machinery and equipment expenditures	51.4	(X)	49.7	(X)	22.4	(X)	62.3	(X)	126.4	(X)
Automobiles, trucks, etc., for highway use	1.3	24	.3	57	1.8	42	.5	47	3.1	28
Computers and peripheral data processing equipment	10.8	15	4.9	13	6.4	26	11.3	7	25.1	6
All other	39.4	5	44.5	2	14.3	12	50.4	2	98.2	2
Adjustment ratio[3]	1.1	(X)	1.4	(X)	1.3	(X)	1.6	(X)	1.6	(X)
Cost of materials, components, parts, etc., used	1 062.6	(X)	539.6	(X)	673.4	(X)	740.5	(X)	1 951.6	(X)
Materials purchased or transferred from foreign sources[4]	(S)	(X)	6.0	35	16.3	31	73.8	21	144.3	19
Materials purchased or transferred from domestic sources	(S)	(X)	533.6	1	657.1	1	666.7	3	1 807.3	2
Adjustment ratio[3]	(S)	(X)	1.6	(X)	1.5	(X)	1.8	(X)	1.7	(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.

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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 3561, PUMPS AND PUMPING EQUIPMENT												
Total	**E1**	**430**	**36.9**	**1 225.3**	**20.9**	**41.0**	**582.1**	**2 746.0**	**2 473.1**	**5 268.4**	**155.0**	**1 220.0**
Establishments with an average of—												
1 to 4 employees	E7	67	.1	3.3	.1	.2	1.6	7.7	8.2	15.9	.5	3.9
5 to 9 employees	E6	65	.4	11.3	.2	.5	5.6	27.1	23.0	48.4	1.4	12.4
10 to 19 employees	E2	67	1.0	27.1	.5	1.1	12.1	67.9	58.3	127.7	2.7	26.5
20 to 49 employees	–	89	3.0	90.7	1.8	3.6	42.7	219.3	176.6	390.9	8.5	88.1
50 to 99 employees	E1	40	2.9	83.8	1.8	3.6	40.3	197.2	185.3	388.3	9.3	82.2
100 to 249 employees	E1	55	8.9	287.1	4.9	9.9	135.1	618.4	682.1	1 322.2	28.2	285.1
250 to 499 employees	E1	36	12.0	408.6	6.8	13.5	184.2	906.8	855.7	1 773.4	56.2	461.3
500 to 999 employees	E1	8	5.1	175.0	2.9	5.6	89.1	346.7	283.5	637.8	25.9	130.1
1,000 to 2,499 employees	–	3	3.5	138.3	1.9	3.1	71.4	354.9	200.3	563.8	22.3	130.5
Covered by administrative records[2]	E9	109	.5	11.6	.3	.6	5.5	20.4	19.7	40.1	1.4	9.7
INDUSTRY 3562, BALL AND ROLLER BEARINGS												
Total	**–**	**183**	**34.9**	**1 091.2**	**28.2**	**57.5**	**824.6**	**2 546.7**	**1 717.4**	**4 287.9**	**206.5**	**889.8**
Establishments with an average of—												
1 to 4 employees	E9	20	(Z)	.8	(Z)	.1	.6	1.7	1.2	2.9	.2	.7
5 to 9 employees	E5	20	.1	4.3	.1	.2	3.1	8.1	7.0	15.1	.8	3.8
10 to 19 employees	E3	21	.3	7.8	.2	.5	5.3	14.1	11.6	25.7	1.1	7.9
20 to 49 employees	E1	20	.7	21.3	.5	1.0	12.6	60.6	35.4	95.0	10.2	17.8
50 to 99 employees	–	25	2.0	56.9	1.5	3.1	38.8	143.3	129.0	265.2	20.6	59.5
100 to 249 employees	–	27	4.1	123.1	3.2	6.7	81.5	301.1	167.0	466.1	33.6	125.6
250 to 499 employees	–	31	11.6	356.8	9.4	19.1	268.4	1 008.3	627.9	1 654.8	59.9	362.9
500 to 999 employees	–	16	10.7	318.9	8.7	17.6	247.5	711.0	460.0	1 172.9	57.6	245.2
1,000 to 2,499 employees	–	3	5.4	201.3	4.5	9.3	166.9	298.6	278.4	590.2	22.5	66.4
Covered by administrative records[2]	E9	37	.2	4.6	.2	.3	3.6	8.3	7.1	15.4	.8	3.4
INDUSTRY 3563, AIR AND GAS COMPRESSORS												
Total	**E1**	**258**	**23.4**	**777.5**	**13.5**	**27.4**	**382.1**	**2 069.8**	**2 120.2**	**4 170.3**	**138.0**	**1 007.4**
Establishments with an average of—												
1 to 4 employees	E6	53	.1	2.7	.1	.1	1.4	7.8	6.8	15.2	.2	4.0
5 to 9 employees	E5	40	.3	6.6	.2	.3	3.0	15.7	14.9	30.6	.6	7.9
10 to 19 employees	E2	45	.6	19.7	.3	.7	7.8	44.6	56.8	101.1	1.9	24.7
20 to 49 employees	E1	35	1.1	33.3	.6	1.3	17.4	81.9	70.8	154.2	4.7	30.7
50 to 99 employees	E1	31	2.2	63.0	1.3	2.6	29.0	139.0	163.0	302.7	5.3	89.7
100 to 249 employees	–	29	4.5	150.1	2.6	5.7	72.6	415.0	462.6	884.7	25.5	172.0
250 to 499 employees	E3	15	5.1	163.7	2.6	5.0	68.0	465.5	626.8	1 091.5	27.7	135.3
500 to 999 employees	–	6	3.9	147.2	2.6	5.3	86.4	442.9	431.5	887.8	40.8	315.1
1,000 to 2,499 employees	–	4	5.6	191.2	3.2	6.4	96.6	457.3	286.9	702.4	31.2	228.0
Covered by administrative records[2]	E9	71	.3	6.5	.2	.3	3.0	12.3	13.3	25.6	.5	6.2
INDUSTRY 3564, BLOWERS AND FANS												
Total	**E1**	**587**	**26.0**	**723.9**	**17.5**	**34.9**	**394.5**	**1 647.9**	**1 339.0**	**3 000.9**	**60.7**	**361.0**
Establishments with an average of—												
1 to 4 employees	E8	150	.3	6.3	.2	.4	3.5	13.2	12.2	25.5	.5	3.0
5 to 9 employees	E6	92	.6	14.7	.4	.7	7.6	30.8	26.7	57.4	1.3	6.2
10 to 19 employees	E2	88	1.3	31.4	.8	1.6	16.0	75.0	53.5	129.0	1.4	14.4
20 to 49 employees	E1	124	4.0	111.2	2.6	5.3	54.3	260.2	238.3	499.8	7.2	57.0
50 to 99 employees	E1	53	3.8	94.7	2.6	5.2	52.5	216.3	187.6	403.5	7.3	56.1
100 to 249 employees	–	64	9.9	270.3	7.0	14.2	158.0	690.7	547.7	1 248.7	30.3	138.6
250 to 499 employees	E2	12	3.9	116.8	2.5	4.8	57.1	225.6	183.3	411.2	8.1	51.8
500 to 999 employees	–	4	2.2	78.5	1.4	2.7	45.5	136.1	89.7	225.9	4.5	34.0
Covered by administrative records[2]	E9	219	.9	17.3	.6	1.1	9.6	33.7	30.6	64.2	1.5	8.1
INDUSTRY 3565, PACKAGING MACHINERY												
Total	**E1**	**631**	**26.2**	**894.4**	**15.4**	**31.0**	**427.6**	**1 913.5**	**1 252.4**	**3 126.9**	**70.1**	**753.0**
Establishments with an average of—												
1 to 4 employees	E9	143	.3	8.0	.2	.4	3.9	17.6	10.4	27.9	.7	6.7
5 to 9 employees	E6	114	.8	22.2	.5	.9	10.7	41.7	25.6	67.3	1.5	15.0
10 to 19 employees	E1	110	1.5	44.3	.9	1.8	21.3	99.7	58.3	155.0	4.1	37.7
20 to 49 employees	–	123	4.2	136.0	2.6	5.4	66.9	265.2	169.4	433.8	8.2	99.9
50 to 99 employees	–	77	5.3	176.1	3.1	6.4	82.7	360.3	245.7	607.9	9.9	145.4
100 to 249 employees	E1	48	7.3	248.8	4.4	8.7	119.2	518.9	415.2	927.7	25.5	224.1
250 to 499 employees	E1	11	3.9	145.1	2.3	4.7	70.2	338.6	175.2	495.0	11.7	115.1
500 to 999 employees	–	5	3.0	114.0	1.6	2.8	52.8	271.4	152.6	412.2	8.4	109.1
Covered by administrative records[2]	E9	236	1.0	24.8	.6	1.2	12.1	49.4	28.5	77.9	2.1	18.1

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 3566, SPEED CHANGERS, DRIVES, AND GEARS												
Total	**–**	**287**	**15.7**	**495.8**	**10.4**	**20.6**	**283.7**	**1 160.5**	**646.3**	**1 823.1**	**69.8**	**406.3**
Establishments with an average of—												
1 to 4 employees	E9	43	.1	2.7	.1	.1	1.7	6.0	2.9	8.9	.3	1.9
5 to 9 employees	E3	40	.3	8.0	.2	.4	4.7	18.3	9.3	27.6	1.1	5.3
10 to 19 employees	E1	59	.8	27.0	.6	1.3	15.4	48.9	33.3	81.6	2.4	16.1
20 to 49 employees	–	70	2.3	67.4	1.5	3.1	37.2	136.9	84.4	221.2	7.6	48.5
50 to 99 employees	E1	38	2.6	83.7	1.7	3.6	44.9	188.5	127.4	318.8	14.0	67.6
100 to 249 employees	–	24	3.6	116.0	2.3	4.8	66.1	312.5	165.2	481.8	18.1	116.2
250 to 499 employees	E1	11	6.0	191.1	4.0	7.3	113.6	449.4	223.8	683.2	26.2	150.6
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	69	.3	8.0	.2	.5	4.8	15.6	8.1	23.7	.8	5.4
INDUSTRY 3567, INDUSTRIAL FURNACES AND OVENS												
Total	**E1**	**409**	**17.0**	**529.4**	**10.3**	**20.1**	**230.9**	**982.1**	**764.2**	**1 757.7**	**27.6**	**306.9**
Establishments with an average of—												
1 to 4 employees	E6	67	.1	3.5	.1	.2	1.7	6.7	11.7	18.7	.3	2.6
5 to 9 employees	E4	76	.5	13.9	.3	.6	6.1	24.3	22.4	46.7	.4	7.6
10 to 19 employees	E1	85	1.2	37.6	.7	1.4	16.0	70.9	56.7	127.7	1.2	20.3
20 to 49 employees	–	87	2.6	76.4	1.5	3.0	33.6	154.3	115.4	270.3	3.3	47.7
50 to 99 employees	E1	46	3.3	105.7	1.9	4.0	43.9	189.8	171.5	369.0	4.3	50.9
100 to 249 employees	E1	39	5.8	181.1	3.4	6.7	85.2	334.6	225.1	562.9	8.9	110.3
250 to 499 employees	–	8	3.5	111.2	2.3	4.2	44.3	201.5	161.3	362.4	9.3	67.6
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	98	.4	8.2	.3	.5	3.8	16.3	13.1	29.4	.3	5.4
INDUSTRY 3568, POWER TRANSMISSION EQUIPMENT, N.E.C.												
Total	**–**	**311**	**21.8**	**679.0**	**14.6**	**29.6**	**386.3**	**1 493.0**	**922.0**	**2 411.4**	**72.5**	**549.7**
Establishments with an average of—												
1 to 4 employees	E8	41	.1	1.7	.1	.1	1.1	3.7	2.9	6.5	.1	1.2
5 to 9 employees	E7	41	.3	8.3	.2	.4	5.0	16.4	12.5	28.9	.9	6.2
10 to 19 employees	E4	58	.8	21.8	.6	1.1	12.9	39.6	25.4	65.2	1.5	13.0
20 to 49 employees	E1	74	2.4	67.3	1.6	3.3	35.7	144.1	123.2	267.9	9.9	47.4
50 to 99 employees	–	33	2.3	70.1	1.7	3.5	40.7	166.7	110.6	278.1	7.7	48.8
100 to 249 employees	E1	45	7.5	223.7	4.9	9.8	128.1	487.2	301.7	799.2	27.6	189.7
250 to 499 employees	–	14	4.8	151.6	3.4	6.9	92.9	377.4	169.1	531.3	12.7	137.5
500 to 999 employees	–	4	3.6	134.5	2.3	4.5	69.9	258.0	176.7	434.3	12.0	105.8
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	80	.5	11.4	.4	.7	6.9	18.1	14.6	32.7	.7	6.2
INDUSTRY 3569, GENERAL INDUSTRIAL MACHINERY, N.E.C.												
Total	**E1**	**1 028**	**41.5**	**1 308.4**	**23.3**	**47.1**	**548.9**	**3 229.4**	**2 316.8**	**5 526.1**	**180.1**	**1 040.7**
Establishments with an average of—												
1 to 4 employees	E7	247	.5	12.8	.3	.5	5.1	26.9	21.8	48.3	1.4	9.1
5 to 9 employees	E3	163	1.1	29.6	.6	1.3	12.7	68.9	48.6	117.1	2.6	18.3
10 to 19 employees	E1	192	2.7	77.7	1.5	3.1	33.1	164.9	129.3	292.6	6.7	54.3
20 to 49 employees	E1	218	6.9	202.9	4.2	8.6	90.7	469.2	331.2	798.5	28.8	148.2
50 to 99 employees	–	102	7.7	226.6	4.4	8.8	96.2	486.9	385.7	876.0	26.0	161.4
100 to 249 employees	E1	81	12.3	385.0	7.2	14.5	175.5	1 011.5	801.5	1 811.3	48.6	360.9
250 to 499 employees	–	20	6.7	237.0	3.6	7.3	90.6	774.0	436.6	1 196.9	27.4	199.5
500 to 999 employees	–	4	3.8	136.7	1.5	3.0	45.0	227.1	162.2	385.4	38.6	89.1
1,000 to 2,499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	270	.8	16.8	.5	.9	7.2	36.0	28.8	64.8	2.2	12.5

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)				
3561	**Pumps and pumping equipment:**										
	All establishments in industry	430	36.9	1 225.3	20.9	41.0	582.1	2 746.0	2 473.1	5 268.4	155.0
	Establishments with this product class primary:										
35611	Industrial pumps, except fluid power pumps	163	20.9	721.0	11.2	22.1	329.6	1 607.8	1 386.6	3 030.0	91.8
35613	Domestic water systems	18	3.0	88.4	1.9	3.7	42.8	189.9	330.0	520.2	13.6
35615	Pumps, n.e.c.	63	6.5	208.6	4.0	8.1	105.3	475.0	417.5	903.1	25.4
35616	Parts and attachments for pumps and pumping equipment (except for hydraulic fluid power and air and gas compressors)	55	5.5	183.7	3.2	6.1	93.0	423.1	292.8	720.3	21.0
3562	**Ball and roller bearings:**										
	All establishments in industry	183	34.9	1 091.2	28.2	57.5	824.6	2 546.7	1 717.4	4 287.9	206.5
	Establishments with this product class primary:										
35621	Ball bearings, complete, unmounted	59	14.9	486.9	11.8	24.1	361.8	941.7	769.4	1 728.1	95.2
35622	Tapered roller bearings (including cups and cones), unmounted	10	6.5	209.6	5.5	11.3	176.4	499.0	404.6	910.1	39.7
35623	Roller bearings, except tapered, unmounted	29	8.3	237.6	6.7	13.6	175.4	600.7	299.6	911.7	38.0
35624	Mounted bearings, except plain	11	2.5	76.9	1.9	3.9	55.1	290.0	119.4	404.7	9.8
35629	Parts for ball and roller bearings, except cups and cones	30	2.3	67.6	1.9	3.9	46.2	186.2	103.9	283.7	21.0
3563	**Air and gas compressors:**										
	All establishments in industry	258	23.4	777.5	13.5	27.4	382.1	2 069.8	2 120.2	4 170.3	138.0
	Establishments with this product class primary:										
35631	Air and gas compressors and vacuum pumps	98	13.9	456.7	7.5	15.2	209.3	1 188.0	1 307.5	2 502.2	85.0
35632	Parts and attachments for air and gas compressors, except refrigeration compressors	35	5.1	179.9	3.2	6.8	102.4	547.1	403.0	930.4	39.0
35635	Industrial spraying equipment	52	4.0	127.5	2.4	4.8	64.2	307.8	382.6	684.0	12.9
3564	**Blowers and fans:**										
	All establishments in industry	587	26.0	723.9	17.5	34.9	394.5	1 647.9	1 339.0	3 000.9	60.7
	Establishments with this product class primary:										
35643	Centrifugal fans and blowers	60	6.1	190.3	4.1	8.1	107.7	447.7	281.0	733.7	21.1
35644	Propeller fans and accessories, axial fans and power roof ventilators, and parts	57	5.5	163.5	3.8	7.7	94.9	383.4	296.3	686.1	10.5
35645	Dust collection and other air purification equipment for cleaning incoming air	127	8.7	203.6	6.1	12.0	110.9	441.1	431.0	873.8	13.3
35646	Dust collection and other air purification equipment for industrial gas cleaning systems (for cleaning outgoing air)	72	3.8	126.5	2.3	4.7	57.5	301.0	266.1	568.5	11.6
3565	**Packaging machinery:**										
	All establishments in industry	631	26.2	894.4	15.4	31.0	427.6	1 913.5	1 252.4	3 126.9	70.1
	Establishments with this product class primary:										
35651	Packing, packaging, and bottling machinery, except parts	299	21.5	746.6	12.7	25.3	350.8	1 626.5	1 057.2	2 652.7	56.4
35652	Parts for packing, packaging, and bottling machinery	29	2.5	89.0	1.5	3.1	48.6	162.1	127.2	281.8	5.9
3566	**Speed changers, drives, and gears:**										
	All establishments in industry	287	15.7	495.8	10.4	20.6	283.7	1 160.5	646.3	1 823.1	69.8
3567	**Industrial furnaces and ovens:**										
	All establishments in industry	409	17.0	529.4	10.3	20.1	230.9	982.1	764.2	1 757.7	27.6
	Establishments with this product class primary:										
35671	Electric industrial furnaces, ovens, and kilns	70	3.8	136.0	1.8	3.6	44.8	213.0	213.2	433.3	3.7
35674	High-frequency induction and dielectric heating equipment	24	1.3	48.8	.7	1.5	19.6	109.2	68.3	176.2	4.4
35675	Electrical heating equipment for industrial use, n.e.c. (except soldering iron), and parts and attachments	83	6.6	167.3	4.8	9.0	88.6	363.1	196.1	556.8	12.1
35676	Fuel-fired industrial furnaces, ovens, and kilns	77	3.8	134.8	2.0	4.0	58.3	211.7	216.7	438.7	5.6
3568	**Power transmission equipment, n.e.c.:**										
	All establishments in industry	311	21.8	679.0	14.6	29.6	386.3	1 493.0	922.0	2 411.4	72.5
	Establishments with this product class primary:										
35681	Plain bearings and bushings	40	3.4	104.7	2.5	4.8	64.5	242.6	109.9	355.9	11.5
35683	Mechanical power transmission equipment, except speed changers, drives, and gears, n.e.c.	146	17.0	538.8	11.2	22.8	299.7	1 183.0	755.3	1 931.2	58.2
3569	**General industrial machinery, n.e.c.:**										
	All establishments in industry	1 028	41.5	1 308.4	23.3	47.1	548.9	3 229.4	2 316.8	5 526.1	180.1
	Establishments with this product class primary:										
35693	Filters and strainers, except fluid power	204	13.2	414.7	8.0	15.7	179.9	1 254.3	797.0	2 043.1	78.4
35694	Filters for hydraulic fluid power systems, nonaerospace	19	1.4	39.9	.9	1.9	19.6	111.6	63.1	175.4	5.8
35695	Filters for pneumatic fluid power systems, nonaerospace	5	.5	14.6	.3	.6	5.8	30.8	19.9	48.8	(D)
35696	Filters for hydraulic and pneumatic fluid power systems, aerospace	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
35699	General industrial machinery, n.e.c.	380	22.5	741.4	11.9	24.3	299.8	1 618.0	1 302.1	2 909.8	82.4

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

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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

[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 3561, PUMPS AND PUMPING EQUIPMENT			
Total value of shipments	5 268.4	3 998.3	(NA)
Primary products value of shipments	4 307.4	3 150.6	(NA)
Secondary products value of shipments	465.0	431.8	(NA)
Total miscellaneous receipts	496.1	415.9	(NA)
Value of resales	320.3	206.9	(NA)
Contract receipts	10.9	11.5	(NA)
Other miscellaneous receipts	164.9	197.5	(NA)
Sales of scrap and refuse	1.4	.3	(NA)
Receipts for installation (or construction) of products of this establishment	(D)	(D)	(NA)
Receipts for repair work	53.6	143.7	(NA)
Other miscellaneous receipts	(D)	(D)	(NA)
Other miscellaneous receipts, n.s.k.	43.6	6.3	(NA)
Primary products specialization ratio	90	88	(NA)
Value of primary products shipments made in all industries	4 603.3	3 447.6	(NA)
Value of primary products shipments made in this industry	4 307.4	3 150.6	(NA)
Value of primary products shipments made in other industries	296.0	297.0	(NA)
Coverage ratio	94	91	(NA)
INDUSTRY 3562, BALL AND ROLLER BEARINGS			
Total value of shipments	4 287.9	3 723.7	3 149.5
Primary products value of shipments	4 067.4	3 506.1	2 939.2
Secondary products value of shipments	92.1	82.6	134.3
Total miscellaneous receipts	128.4	135.1	76.0
Value of resales	110.6	122.1	61.1
Contract receipts	(D)	1.9	(D)
Other miscellaneous receipts	(D)	11.1	(D)
Primary products specialization ratio	98	98	96
Value of primary products shipments made in all industries	4 138.6	3 563.8	2 973.1
Value of primary products shipments made in this industry	4 067.4	3 506.1	2 939.2
Value of primary products shipments made in other industries	71.2	57.7	33.9
Coverage ratio	98	98	99
INDUSTRY 3563, AIR AND GAS COMPRESSORS			
Total value of shipments	4 170.3	3 050.9	3 270.0
Primary products value of shipments	3 250.2	2 470.0	2 603.3
Secondary products value of shipments	384.0	317.0	300.4
Total miscellaneous receipts	536.1	263.9	366.3
Value of resales	332.9	159.5	163.0
Contract receipts	8.3	21.1	9.3
Other miscellaneous receipts	195.0	83.3	194.0
Sales of scrap and refuse	(D)	(D)	(NA)
Receipts for installation (or construction) of products of this establishment	20.4	(D)	(D)
Receipts for repair work	64.2	16.2	52.0
Other miscellaneous receipts	(D)	14.1	117.2
Other miscellaneous receipts, n.s.k.	1.0	14.4	(D)
Primary products specialization ratio	89	89	90
Value of primary products shipments made in all industries	3 541.8	2 628.9	2 846.2
Value of primary products shipments made in this industry	3 250.2	2 470.0	2 603.3
Value of primary products shipments made in other industries	291.5	158.9	242.9
Coverage ratio	92	94	91
INDUSTRY 3564, BLOWERS AND FANS			
Total value of shipments	3 000.9	2 272.4	2 173.5
Primary products value of shipments	2 698.7	1 957.0	1 827.1
Secondary products value of shipments	154.3	191.9	252.4
Total miscellaneous receipts	148.0	123.5	93.9
Value of resales	99.7	77.4	59.5
Contract receipts	17.7	26.4	6.8
Other miscellaneous receipts	30.5	19.7	27.6
Primary products specialization ratio	95	91	88
Value of primary products shipments made in all industries	2 999.9	2 181.6	1 994.5
Value of primary products shipments made in this industry	2 698.7	1 957.0	1 827.1
Value of primary products shipments made in other industries	301.2	224.6	167.4
Coverage ratio	90	90	92

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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 3565, PACKAGING MACHINERY			
Total value of shipments	3 126.9	2 189.9	(NA)
Primary products value of shipments	2 669.6	1 845.2	(NA)
Secondary products value of shipments	210.5	214.9	(NA)
Total miscellaneous receipts	246.8	129.8	(NA)
Value of resales	158.3	71.4	(NA)
Contract receipts	16.4	3.8	(NA)
Other miscellaneous receipts	72.1	54.6	(NA)
Sales of scrap and refuse	.3	.1	(NA)
Receipts for installation (or construction) of products of this establishment	11.2	5.8	(NA)
Receipts for repair work	31.7	21.4	(NA)
Other miscellaneous receipts	16.9	11.1	(NA)
Other miscellaneous receipts, n.s.k.	12.0	16.2	(NA)
Primary products specialization ratio	93	90	(NA)
Value of primary products shipments made in all industries	2 836.7	2 039.9	(NA)
Value of primary products shipments made in this industry	2 669.6	1 845.2	(NA)
Value of primary products shipments made in other industries	167.0	194.7	(NA)
Coverage ratio	94	90	(NA)
INDUSTRY 3566, SPEED CHANGERS, DRIVES, AND GEARS			
Total value of shipments	1 823.1	1 569.0	1 631.6
Primary products value of shipments	1 515.9	1 343.1	1 347.8
Secondary products value of shipments	191.2	133.5	212.8
Total miscellaneous receipts	116.0	92.4	71.0
Value of resales	67.9	63.1	38.4
Contract receipts	31.9	23.4	21.9
Other miscellaneous receipts	16.3	5.9	10.7
Primary products specialization ratio	89	91	86
Value of primary products shipments made in all industries	1 693.5	1 541.4	1 557.4
Value of primary products shipments made in this industry	1 515.9	1 343.1	1 347.8
Value of primary products shipments made in other industries	177.6	198.4	209.6
Coverage ratio	90	87	87
INDUSTRY 3567, INDUSTRIAL FURNACES AND OVENS			
Total value of shipments	1 757.7	1 434.8	1 102.2
Primary products value of shipments	1 530.6	1 145.2	968.1
Secondary products value of shipments	126.4	162.3	75.7
Total miscellaneous receipts	100.6	127.4	58.4
Value of resales	47.7	42.6	19.1
Contract receipts	21.7	22.7	5.5
Other miscellaneous receipts	31.3	62.1	33.8
Primary products specialization ratio	92	88	93
Value of primary products shipments made in all industries	1 709.0	1 235.5	1 026.8
Value of primary products shipments made in this industry	1 530.6	1 145.2	968.1
Value of primary products shipments made in other industries	178.4	90.3	58.6
Coverage ratio	90	93	94
INDUSTRY 3568, POWER TRANSMISSION EQUIPMENT, N.E.C.			
Total value of shipments	2 411.4	2 041.1	1 926.8
Primary products value of shipments	2 058.6	1 779.2	1 661.6
Secondary products value of shipments	194.6	166.4	178.2
Total miscellaneous receipts	158.2	95.5	87.0
Value of resales	140.4	80.5	68.9
Contract receipts	11.2	7.0	10.2
Other miscellaneous receipts	6.6	8.0	7.9
Primary products specialization ratio	91	91	90
Value of primary products shipments made in all industries	2 325.4	2 071.0	1 985.6
Value of primary products shipments made in this industry	2 058.6	1 779.2	1 661.6
Value of primary products shipments made in other industries	266.8	291.9	324.0
Coverage ratio	89	86	84
INDUSTRY 3569, GENERAL INDUSTRIAL MACHINERY, N.E.C.			
Total value of shipments	5 526.1	3 840.4	(NA)
Primary products value of shipments	4 544.0	3 303.1	(NA)
Secondary products value of shipments	537.7	330.1	(NA)
Total miscellaneous receipts	444.4	207.1	(NA)
Value of resales	351.1	134.0	(NA)
Contract receipts	30.6	22.2	(NA)
Other miscellaneous receipts	62.6	50.9	(NA)
Sales of scrap and refuse	1.2	1.9	(NA)
Receipts for installation (or construction) of products of this establishment	9.1	4.4	(NA)
Receipts for repair work	25.3	17.6	(NA)
Other miscellaneous receipts	21.3	17.0	(NA)
Other miscellaneous receipts, n.s.k.	5.7	10.0	(NA)
Primary products specialization ratio	89	91	(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 3569, GENERAL INDUSTRIAL MACHINERY, N.E.C. —Con.			
Value of primary products shipments made in all industries	5 093.3	3 840.5	(NA)
Value of primary products shipments made in this industry	4 544.0	3 303.1	(NA)
Value of primary products shipments made in other industries	549.3	537.4	(NA)
Coverage ratio	89	86	(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	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3561– —	**PUMPS AND PUMPING EQUIPMENT**				
	Total	**(NA)**	**4 603.3**	**(NA)**	**3 447.6**
35611	Industrial pumps, except fluid power pumps	(NA)	2 390.7	(NA)	1 659.8
35611 00	Industrial pumps, except hydraulic fluid power pumps, automotive circulating pumps, and measuring and dispensing pumps[3]	196	2 390.7	142	1 659.8
35613	Domestic water systems	(NA)	317.6	(NA)	276.9
35613 00	Domestic water systems (pumps for farm and home use), excluding irrigation pumps[3]	32	317.6	24	276.9
35615	Pumps, n.e.c.	(NA)	697.6	(NA)	446.9
35615 30	Domestic sump pumps (1 hp or less) (including the value of the driver if shipped as a complete unit)[3]	23	150.8	16	136.7
35615 10	Oil-well and oil-field pumps, except boiler feed (including the value of the driver if shipped as a complete unit)[3]	28	208.0	20	108.4
35615 20	Other pumps, except automotive circulating pumps and measuring and dispensing pumps[3]	61	338.8	41	183.9
35615 00	Pumps, n.e.c., n.s.k.	(NA)	–	(NA)	17.8
35616	Parts and attachments for pumps and pumping equipment (except for hydraulic fluid power and air and gas compressors)	(NA)	1 103.8	(NA)	875.3
35616 00	Parts and attachments for pumps and pumping equipment (except for hydraulic fluid power and air and gas compressors)	125	1 103.8	113	875.3
35610	Pumps and pumping equipment, n.s.k.	(NA)	93.7	(NA)	188.9
35610 00	Pumps and pumping equipment, n.s.k.[4]	(NA)	61.3	(NA)	108.6
35610 02	Pumps and pumping equipment, n.s.k.[5]	(NA)	32.3	(NA)	80.3
3562– —	**BALL AND ROLLER BEARINGS**				
	Total	**(NA)**	**4 138.6**	**(NA)**	**3 563.8**
35621	Ball bearings, complete, unmounted	(NA)	1 555.1	(NA)	1 306.1
35621 00	Ball bearings, complete, unmounted[3]	57	1 555.1	50	1 306.1
35622	Tapered roller bearings (including cups and cones), unmounted	(NA)	936.1	(NA)	756.2
35622 00	Tapered roller bearings (including cups and cones), unmounted[3]	11	936.1	13	756.2
35623	Roller bearings, except tapered, unmounted	(NA)	810.4	(NA)	735.5
35623 00	Roller bearings, except tapered, unmounted[3]	29	810.4	31	735.5
35624	Mounted bearings, except plain	(NA)	359.4	(NA)	300.4
35624 00	Mounted bearings, except plain[3]	20	359.4	16	300.4
35629	Parts for ball and roller bearings, except cups and cones	(NA)	429.4	(NA)	425.5
35629 00	Parts and components for ball and roller bearings (including ball and rollers sold separately)[3]	47	429.4	42	425.5
35620	Ball and roller bearings, n.s.k.	(NA)	48.2	(NA)	40.2
35620 00	Ball and roller bearings, n.s.k.[6]	(NA)	37.2	(NA)	10.6
35620 02	Ball and roller bearings, n.s.k.[7]	(NA)	11.0	(NA)	29.5

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)
3563– —	**AIR AND GAS COMPRESSORS**						
	Total	**(NA)**	**(X)**	**3 541.8**	**(NA)**	**(X)**	**2 628.9**
35631	Air and gas compressors and vacuum pumps	(NA)	(X)	2 054.7	(NA)	(X)	1 259.8
35631 20	Vacuum pumps (compressors) (including value of the driver if shipped as a complete unit), except laboratory[3]	36	(X)	176.5	22	(X)	124.0
35631 30	Air and gas compressors, except compressors for ice making, refrigeration, or air-conditioning equipment, and air motors	89	(X)	1 874.2	67	(X)	1 070.9
35631 00	Air and gas compressors and vacuum pumps, n.s.k.[3]	(NA)	(X)	4.0	(NA)	(X)	64.8
35632	Parts and attachments for air and gas compressors, except refrigeration compressors	(NA)	(X)	735.7	(NA)	(X)	538.5
35632 00	Parts and attachments for air and gas compressors, except for refrigeration, ice making, and air-conditioning equipment	86	(X)	735.7	54	(X)	538.5
35635	Industrial spraying equipment	(NA)	(X)	705.0	(NA)	(X)	669.1
35635 31	Power paint spraying outfits and other liquid power sprayers, except agricultural	44	(X)	650.2	29	(X)	566.3
35635 51	Hand sprayers, except agricultural and flame — thousands	17	(S)	50.7	9	(S)	81.6
35635 00	Industrial spraying equipment, n.s.k.	(NA)	(X)	4.1	(NA)	(X)	21.2
35630	Air and gas compressors, n.s.k.	(NA)	(X)	46.4	(NA)	(X)	161.6
35630 00	Air and gas compressors, n.s.k.[4]	(NA)	(X)	28.3	(NA)	(X)	113.5
35630 02	Air and gas compressors, n.s.k.[5]	(NA)	(X)	18.1	(NA)	(X)	48.1

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)
3564– —	**BLOWERS AND FANS**				
	Total	**(NA)**	**2 999.9**	**(NA)**	**2 181.6**
35643	Centrifugal fans and blowers	(NA)	741.8	(NA)	587.6
35643 17	Blower-filter units	12	99.9	15	52.6
35643 19	Classes I and II fans (more than 1 1/2 inch to 6 3/4 inch maximum total pressure)	28	73.7	35	102.6
35643 21	Classes III and IV fans (more than 6 3/4 inch maximum total pressure)	23	73.8	(NA)	[8]
35643 24	Industrial fans, excluding blowers, turboblowers, and multistage blowers	31	149.3	42	187.9
35643 27	Positive displacement blowers, excluding turboblowers	7	102.4	8	77.6
35643 29	Multistage blowers	7	57.7	8	41.6
35643 31	Small housed blowers (utility sets)	15	15.6	17	25.0
35643 39	Other centrifugal fans and blowers (including furnace blowers, lightweight air-conditioning blowers, and turboblowers)	26	160.4	(NA)	[8]79.1
35643 00	Centrifugal fans and blowers, n.s.k.	(NA)	9.1	(NA)	21.3
35644	Propeller fans and accessories, axial fans and power roof ventilators, and parts	(NA)	621.7	(NA)	464.7
	Axial fans:				
35644 13	Directly connected to driver	37	138.1	22	115.2
35644 15	Belt-driven	26	35.4	21	27.9
	Propeller fans and accessories:				
	Industrial:				
35644 33	Directly connected to driver	25	86.3	22	41.4
35644 35	Belt-driven	21	69.5	18	62.5
35644 37	Penthouses, shutters, guards, and other accessories	15	22.0	14	36.2
35644 39	Parts for fans and blowers	38	124.4	20	(D)
	Power roof ventilators group:				
35644 41	Axial and propeller type	17	43.9	21	59.4
35644 43	Centrifugal type	14	86.6	12	75.7
35644 45	Parts for power roof ventilators	8	8.6	3	(D)
35644 00	Propeller fans and accessories, axial fans and power roof ventilators, and parts, n.s.k.	(NA)	7.0	(NA)	7.0
35645	Dust collection and other air purification equipment for cleaning incoming air	(NA)	959.1	(NA)	574.9
35645 31	Air washers	10	57.5	11	17.2
	Dust collection and other air purification equipment:				
35645 41	Electrostatic precipitation equipment	10	80.0	9	57.4
35645 43	Air filters for air-conditioners and furnaces, etc., of 2400 CFM or less	42	320.8	35	174.7
35645 46	Other dust collection and other air purification equipment (including air filters for air-conditioners and furnaces)	88	427.8	44	268.6
35645 47	Parts	17	45.3	20	39.3
35645 00	Dust collection and other air purification equipment for cleaning incoming air, n.s.k.	(NA)	27.7	(NA)	17.8

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	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3564– —	**BLOWERS AND FANS**—Con.				
35646	Dust collection and other air purification equipment for industrial gas cleaning systems (for cleaning outgoing air)	(NA)	545.0	(NA)	296.9
35646 11	Dust collection and other air purification equipment for industrial gas cleaning systems (for cleaning outgoing air)	87	529.2	41	260.2
35646 21	Parts for industrial air purification equipment	16	10.7	19	29.9
35646 00	Dust collection and other air purification equipment for industrial gas cleaning systems, n.s.k.	(NA)	5.1	(NA)	6.8
35640	Blowers and fans, n.s.k.	(NA)	132.5	(NA)	257.4
35640 00	Blowers and fans, n.s.k.[9]	(NA)	68.2	(NA)	191.2
35640 02	Blowers and fans, n.s.k.[10]	(NA)	64.2	(NA)	66.2
3565– —	**PACKAGING MACHINERY**				
	Total	**(NA)**	**2 836.7**	**(NA)**	**2 039.9**
35651	Packing, packaging, and bottling machinery, except parts	(NA)	2 208.0	(NA)	1 690.4
35651 23	Cartoning, multipacking, and leaflet/ coupon placing machinery	41	272.1	(NA)	(11)
35651 25	Thermoforming, blister, and skin (including carded display) machinery	11	30.6	(NA)	(12)
35651 03	Bag (preform) opening, filling, and closing machinery and systems	25	70.7	18	42.0
35651 31	Vacuum, gas, and other modified atmosphere laminating and bagging machines	6	9.2	(NA)	(12)
	Bag or pouch form, fill, and seal machinery (must perform all three functions):				
35651 04	Horizontal	21	77.0	14	75.0
35651 05	Vertical	12	79.7	9	42.5
35651 52	Adhesive devices (hot melt and cold glue)	7	(13)	(NA)	(12)
35651 22	Machinery for cleaning or drying bottles or other containers	11	22.5	12	14.7
35651 51	Bottling and canning machinery (including fillers, all types of closers, and accessory equipment)	21	86.7	(NA)	(12)
	Filling machinery:				
35651 33	Dry products (free and nonfree flowing), including by count machinery, except bags	22	57.6	(NA)	30.7
35651 35	Liquids and viscous products (very heavy liquids, slurries, and pumpable semisolids)	36	107.2	(NA)	86.4
35651 45	Glass or plastics container or can capping, sealing, and lidding machinery (except all filling, bottling, and canning)	19	79.9	23	65.5
35651 37	Labeling machinery (all types of applications and methods)	42	271.5	(NA)	(11)
35651 41	Coding, dating, imprinting, jet printing, marking, and stamping machinery	15	56.5	(NA)	11417.4
35651 43	Corrugated and solid fiber case and tray forming, loading, and sealing machinery	41	158.5	29	170.3
35651 18	Accumulating, collating, feeding, and unscrambling machinery	23	27.5	17	20.8
35651 49	Testing, inspecting, detecting, checkweighing, and other quality control devices	19	95.9	(NA)	(12)
35651 27	Paper, film, and foil wrapping machines (all types, except shrink and stretch film equipment)	12	30.4	(NA)	257.6
35651 28	Shrink and stretch film overwrapping, banding, and bundling machinery (excluding pallet unitizing)	34	135.1		
35651 53	Palletizing, depalletizing, and pallet unitizing machinery with stretch film, adhesive, or strapping	12	45.1	(NA)	(12)
35651 59	Other packing, packaging, and bottling machinery or systems and combination or equipment not listed above, except parts	72	13394.7	(NA)	12303.5
35651 00	Packing, packaging, and bottling machinery, except parts, n.s.k.	(NA)	99.5	(NA)	164.0
35652	Parts for packing, packaging, and bottling machinery	(NA)	427.7	(NA)	303.8
35652 00	Parts for packing, packaging, and bottling machinery	159	427.7	139	303.8
35650	Packaging machinery, n.s.k.	(NA)	201.0	(NA)	45.7
35650 00	Packaging machinery, n.s.k.[9]	(NA)	124.7	(NA)	3.1
35650 02	Packaging machinery, n.s.k.[10]	(NA)	76.4	(NA)	42.6
3566– —	**SPEED CHANGERS, DRIVES, AND GEARS**				
	Total	**(NA)**	**1 693.5**	**(NA)**	**1 541.4**
35660	Speed changers, industrial high-speed drives, and gears	(NA)	1 693.5	(NA)	1 541.4
35660 11	Mechanical nonhydraulic variable speed changers and parts, excluding value of drivers	26	113.4	25	132.9
35660 21	Industrial high-speed drives, fixed ratio (pitch line velocity of 5,000 feet (1,525 meters) per minute or more)	15	58.3	8	44.9
	Speed reducers, fixed ratio, enclosed, except gear motors (sold without motor):				
	Worm gear reducers, including "C" flange or scoop mount:				
35660 17	6 inch (15.24 cm) centers or more	13	25.6	15	44.5
35660 18	3 inch (7.62 cm) to 5.99 inch (15.22 cm) centers	16	67.3	22	88.3
35660 24	Less than 3 inch (7.62 cm) centers	16	74.8	11	73.1
	Shaft mounted reducers and screw conveyor drives, including repair parts:				
35660 25	Hollow shaft diameter, 2 1/ 2 inch (6.35 cm) or less	13	52.0	11	26.4
35660 29	Hollow shaft diameter, more than 2 1/ 2 inch (6.35 cm)	11	45.9	8	34.8
	Helical, herringbone, spur, and spiral bevel reducers:				
35660 27	More than 15 inch (38.10 cm) low-speed center	20	103.0	19	55.7
35660 28	15 inch (38.10 cm) low-speed center or less	27	126.7	26	121.5

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)
3566– —	**SPEED CHANGERS, DRIVES, AND GEARS**—Con.				
35660	Speed changers, industrial high-speed drives, and gears—Con.				
	Gearmotors, sold with motors, including "C" flange and scoop mount units:				
	Worm gearmotors:				
35660 34	Less than 1 horsepower (746.0 w)	10	65.4	(NA)	(D)
35660 37	1 horsepower (746.0 w) or more	10	18.0	(NA)	(D)
	Helical, herringbone, spur, or spiral bevel gearmotors:				
35660 47	Less than 1 horsepower (746.0 w)	9	77.0	(NA)	(D)
35660 49	1 horsepower (746.0 w) or more	14	55.0	(NA)	36.3
	Loose gears, pinions, and racks (excluding spare parts for reducers):				
35660 41	Fine pitch (19.99 diametral pitch and finer)	46	56.2	30	40.2
	Coarse pitch (less than 19.99 diametral pitch):				
	Helical, herringbone, and spur gears:				
35660 42	24 inch (60.96 cm) or less	79	146.3	63	145.1
35660 43	More than 24 inch (60.96 cm) diameter through 72 inch (182.88 cm) diameter	38	164.1	31	46.4
35660 44	More than 72 inch (182.88 cm) diameter	14	12.9	12	31.7
35660 45	Worms and worm gearing	48	69.5	35	45.5
35660 46	Others, including bevel gears and racks	52	86.8	40	128.7
35660 51	Other parts and components for speed changers, including housings, shafts, pins, and spacers	27	99.8	38	101.8
35660 00	Speed changers, drives, and gears, n.s.k.[9]	(NA)	151.9	(NA)	131.4
35660 02	Speed changers, drives, and gears, n.s.k.[10]	(NA)	23.7	(NA)	52.5
3567– —	**INDUSTRIAL FURNACES AND OVENS**				
	Total	**(NA)**	**1 709.0**	**(NA)**	**1 235.5**
35671	Electric industrial furnaces, ovens, and kilns	(NA)	406.4	(NA)	367.7
	Electric furnaces (excluding induction):				
35671 11	Metal melting	13	30.5	8	27.0
35671 21	Metal processing and heat treating (such as annealing, hardening, carburizing, and porcelain enameling furnaces)	47	129.4	33	136.5
35671 29	Other electric furnaces	23	149.2	18	95.2
35671 43	Electric industrial ovens and kilns, including infrared	44	97.4	24	79.9
35671 00	Electric industrial furnaces, ovens, and kilns, n.s.k.	(NA)	(Z)	(NA)	29.2
35674	High-frequency induction and dielectric heating equipment	(NA)	155.7	(NA)	126.2
	Furnaces and ovens, induction or dielectric:				
35674 01	Radio frequency type (includes spark gap) and line and motor-generator set frequency types, except metal melting	9	18.4	10	25.1
35674 02	Metal melting induction furnaces	8	98.8	10	46.6
35674 03	Other induction or dielectric furnaces and ovens	4	19.3	6	26.5
35674 04	Other induction or dielectric heating equipment	13	18.8	6	27.8
35674 00	High-frequency induction and dielectric heating equipment, n.s.k.	(NA)	.5	(NA)	.2
35675	Electrical heating equipment for industrial use, n.e.c. (except soldering iron), and parts and attachments	(NA)	645.1	(NA)	321.5
	Industrial electric heating units and devices:				
35675 01	Tubular heaters	26	65.0	15	54.8
35675 02	Space heaters	10	20.3	6	29.4
35675 03	All other, including strip heaters, ring heaters, water and oil immersion heaters, glue and compound pots, etc.	55	403.0	40	135.2
	Parts and attachments for electrical industrial furnaces and ovens:				
35675 11	For space heaters	7	19.0	7	20.1
35675 12	For other electrical	53	137.9	35	75.5
35675 00	Electrical heating equipment for industrial use, n.e.c. (except soldering iron), and parts and attachments, n.s.k.	(NA)	(Z)	(NA)	6.4
35676	Fuel-fired industrial furnaces, ovens, and kilns	(NA)	355.7	(NA)	263.6
	Furnaces:				
35676 01	Metal melting, including blast furnaces and cupolas	8	7.5	11	44.9
35676 02	Metal processing and heat treating (such as annealing, hardening, carburizing, and porcelain enameling furnaces)	35	144.2	(NA)	91.4
35676 09	Other fuel-fired furnaces (including hot rolling, forging, forming, and extruding)	25	51.0		
35676 15	Industrial ovens and kilns (except cement, wood, and chemical)	38	109.7	(NA)	91.6
	Parts and attachments:				
35676 21	For other fuel-fired furnaces, ovens, and kilns	29	41.3	(NA)	13.2
35676 00	Fuel-fired industrial furnaces, ovens, and kilns, n.s.k.	(NA)	2.0	(NA)	22.5
35670	Industrial furnaces and ovens, n.s.k.	(NA)	146.1	(NA)	156.4
35670 00	Industrial furnaces and ovens, n.s.k.[14]	(NA)	116.7	(NA)	97.6
35670 02	Industrial furnaces and ovens, n.s.k.[15]	(NA)	29.4	(NA)	58.8
3568– —	**POWER TRANSMISSION EQUIPMENT, N.E.C.**				
	Total	**(NA)**	**2 325.4**	**(NA)**	**2 071.0**
35681	Plain bearings and bushings	(NA)	346.0	(NA)	373.8
35681 12	Plain bearings and bushings, unmounted, machined	42	271.7	(NA)	236.4
35681 51	Mounted bearings, plain (except engine)	11	69.6	12	115.6
35681 00	Plain bearings and bushings, n.s.k.	(NA)	4.6	(NA)	21.8

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	Value of product shipments[1] (million dollars)	Number of companies with shipments of $100,000 or more	Value of product shipments[1] (million dollars)
3568– —	**POWER TRANSMISSION EQUIPMENT, N.E.C.**—Con.				
35683	Mechanical power transmission equipment, except speed changers, drives, and gears, n.e.c.	(NA)	1 862.7	(NA)	1 555.2
	Clutches and brakes:				
35683 11	Friction-type	25	224.5	14	162.4
35683 13	Hydraulic-type, including hydraulic couplings	13	41.0	9	26.7
35683 19	All other clutches and brakes	20	122.6	21	117.6
	Flexible couplings:				
35683 20	Gear-type	12	63.6	(NA)	153.6
35683 23	Other than gear-type	24	178.5		
35683 26	Nonflexible couplings	7	5.4	5	18.3
35683 25	Universal joints	12	62.5	10	149.0
35683 30	Ball joints	1	(16)	1	(17)
35683 28	Drive shafts, except flexible shafts	8	18.3	11	17.6
	Chains for sprocket drives:				
35683 33	ASA standard roller chain	7	105.4	(NA)	82.6
35683 35	Other chain for sprocket drives	10	166.9	10	121.8
35683 44	Sprockets	27	121.9	(NA)	102.7
35683 51	Pulleys	23	62.7	21	65.3
	Sheaves:				
35683 61	Single drive	10	42.3	10	30.9
35683 65	Multiple drive	7	54.6	7	44.1
35683 94	Inboard marine propulsion gear transmissions, including reversing, speed changing, and turbine driven gear drives	6	37.1	(NA)	94.5
35683 96	Outboard gear drives (inboard prime mover)	(NA)	–		
35683 89	Other mechanical power transmission equipment, n.e.c.	34	16343.4	(NA)	17254.0
35683 91	Mountings for bearings (pillow blocks, flange blocks, etc.)	5	(18)	8	21.6
35683 99	Other parts for mechanical power transmission equipment	35	18168.7	(NA)	61.4
35683 00	Mechanical power transmission equipment, except speed changers, drives, and gears, n.e.c., n.s.k.	(NA)	43.2	(NA)	31.2
35680	Power transmission equipment, n.e.c., n.s.k.	(NA)	116.7	(NA)	142.0
35680 00	Power transmission equipment, n.e.c., n.s.k.[4]	(NA)	84.1	(NA)	72.5
35680 02	Power transmission equipment, n.e.c., n.s.k.[5]	(NA)	32.7	(NA)	69.6
3569– —	**GENERAL INDUSTRIAL MACHINERY, N.E.C.**				
	Total	**(NA)**	**5 093.3**	**(NA)**	**3 840.5**
35693	Filters and strainers, except fluid power	(NA)	1 810.3	(NA)	1 159.5
	Containment (housing devices):				
35693 04	For water	72	566.4	49	221.8
35693 05	For beverages other than water	13	14.1	14	22.4
35693 06	For other fluids	89	359.4	49	176.5
35693 09	Parts and accessories, sold separately	44	92.1	31	103.8
	Media:				
35693 11	Reusable (cleanable)	46	245.4	26	199.5
35693 12	Nonreusable, including disposable (throwaway) litter cartridges	70	504.4	47	376.0
35693 00	Filters and strainers, except fluid power, n.s.k.	(NA)	28.6	(NA)	59.5
35694	Filters for hydraulic fluid power systems, nonaerospace	(NA)	223.4	(NA)	(19)
35694 00	Hydraulic[3]	37	223.4	(NA)	(19)
35695	Filters for pneumatic fluid power systems, nonaerospace	(NA)	72.0	(NA)	(19)
35695 00	Pneumatic[3]	24	72.0	(NA)	(19)
35696	Filters for hydraulic and pneumatic fluid power systems, aerospace	(NA)	70.6	(NA)	19274.4
35696 00	Filters for hydraulic and pneumatic fluid power systems, aerospace[3]	8	70.6	(NA)	19274.4
35699	General industrial machinery, n.e.c.	(NA)	2 672.6	(NA)	1 736.0
35699 09	Industrial robots, attachments and parts	62	398.0	65	294.7
35699 01	Gas generating equipment	13	42.8	10	31.2
35699 03	Gas separating equipment	20	133.9	10	48.6
35699 05	Steam and vapor separators	4	9.7	4	(20)
	Compressed air and gas dryers:				
35699 41	Refrigerated dryers	9	54.0		
35699 42	Desiccant dryers	15	38.4	(NA)	58.6
35699 43	Deliquescent dryers	3	(D)		
35699 44	Other compressed air and gas dryers	3	(D)		
35699 11	Mixers for industrial processes, solids or liquids	38	215.5	19	152.2
35699 13	Lubricating systems, industrial, centralized and automatic	23	78.4	8	26.2
35699 15	Sifting and screening machines	10	29.2	8	15.9
35699 17	Presses, metal baling	15	47.1	6	19.6
35699 21	Centrifugals and separators (except cream, grain, and berry)	26	189.7	20	92.0
35699 23	Automatic fire sprinklers	16	132.5	12	55.5
35699 25	Pneumatic jacks	2	(D)	3	(20)
35699 27	Hydraulic jacks	12	46.9	12	50.4
35699 31	Screwjacks (except automotive)	4	31.3	7	46.7
35699 47	Other general industrial machinery, n.e.c.	241	948.8	(NA)	20587.2
35699 51	Parts for general industrial equipment, n.e.c.	113	238.5	(NA)	228.0
35699 00	General industrial machinery, n.e.c., n.s.k.	(NA)	22.0	(NA)	29.2
35690	General industrial machinery, n.e.c., n.s.k.	(NA)	244.4	(NA)	670.6
35690 00	General industrial machinery, n.e.c., n.s.k.[14]	(NA)	181.9	(NA)	535.0
35690 02	General industrial machinery, n.e.c., n.s.k.[15]	(NA)	62.5	(NA)	135.7

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.

[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 15 employees or more.
[5]Typically for establishments with less than 15 employees.
[6]Typically for establishments with 20 employees or more.
[7]Typically for establishments with less than 20 employees.
[8]In the 1987 publication, product code 35643 21 was combined with another product code (which was not collected separately for 1992) to avoid disclosing data for individual companies. Consequently, for 1987, product code 35643 21 is now combined with product code 35643 39.
[9]Typically for establishments with 10 employees or more.
[10]Typically for establishments with less than 10 employees.
[11]For 1987, product codes 35651 23, 35651 37, and 35651 41 are combined because of changes in product definitions from 19 87 to 1992.
[12]For 1987, product codes 35651 25, 35651 31, 35651 49, 35651 51, 35651 52, 35651 53, and 35651 59 are combined because of changes in product definitions from 1987 to 1992.
[13]For 1992, product codes 35651 52 and 35651 59 are combined to avoid disclosing data for individual companies.
[14]Typically for establishments with 5 employees or more.
[15]Typically for establishments with less than 5 employees.
[16]For 1992, product codes 35683 30 and 35683 89 are combined to avoid disclosing data for individual companies.
[17]For 1987, product codes 35683 30 and 35683 89 are combined to avoid disclosing data for individual companies.
[18]For 1992, product codes 35683 91 and 35683 99 are combined to avoid disclosing data for individual companies.
[19]For 1987, product class codes 35694, 35695, and 35696 were collected and published collectively as product class code 35692, which contained one product code, 35692 00. Because no further detail was collected, product codes 35694 00, 35695 00, and 35696 00 are combined, as are the three product class codes (35694, 35695, and 35696), for 1987.
[20]For 1987, product codes 35699 05, 35699 25, and 35699 47 are combined to avoid disclosing data for individual companies.

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
35611, INDUSTRIAL PUMPS, EXCEPT FLUID POWER PUMPS		
United States	**2 390.7**	**1 659.8**
California	325.3	247.6
Florida	29.6	(NA)
Georgia	61.1	(NA)
Illinois	158.4	102.9
Indiana	56.5	40.6
Massachusetts	44.0	59.0
Michigan	68.3	46.0
Minnesota	114.1	(NA)
Missouri	16.0	(NA)
New York	190.0	113.0
North Carolina	41.6	(NA)
Ohio	288.2	207.9
Oklahoma	79.9	74.0
Pennsylvania	191.3	164.3
Texas	70.9	26.0
Wisconsin	145.2	104.5
35613, DOMESTIC WATER SYSTEMS		
United States	**317.6**	**276.9**
California	49.9	21.4
Georgia	5.9	(NA)
35615, PUMPS, N.E.C.		
United States	**697.6**	**446.9**
California	93.9	48.3
Florida	2.3	(NA)
Illinois	76.9	36.9
Kansas	4.0	8.4
Kentucky	24.2	(NA)
New York	18.1	(NA)
Ohio	40.2	61.9
Oklahoma	133.6	61.9
Tennessee	11.8	(NA)
Texas	124.4	59.8
35616, PARTS AND ATTACHMENTS FOR PUMPS AND PUMPING EQUIPMENT (EXCEPT FOR HYDRAULIC FLUID POWER AND AIR AND GAS COMPRESSORS)		
United States	**1 103.8**	**875.3**
California	93.6	124.1
Colorado	39.0	(NA)
Georgia	26.3	(NA)
Illinois	49.0	36.8
Louisiana	14.4	11.2
35616, PARTS AND ATTACHMENTS FOR PUMPS AND PUMPING EQUIPMENT (EXCEPT FOR HYDRAULIC FLUID POWER AND AIR AND GAS COMPRESSORS)—Con.		
Massachusetts	27.1	32.5
Michigan	59.5	66.7
Missouri	12.9	14.5
New Jersey	21.3	13.7
Ohio	117.8	91.0
Oklahoma	99.7	69.1
Pennsylvania	78.9	56.6
Texas	105.3	79.6
35621, BALL BEARINGS, COMPLETE, UNMOUNTED		
United States	**1 555.1**	**1 306.1**
Connecticut	108.8	275.5
Illinois	118.2	37.2
Michigan	121.7	70.6
New York	140.9	88.0
Ohio	288.6	(NA)
South Carolina	79.6	29.0
35622, TAPERED ROLLER BEARINGS (INCLUDING CUPS AND CONES), UNMOUNTED		
United States	**936.1**	**756.2**
South Carolina	207.6	(NA)
35623, ROLLER BEARINGS, EXCEPT TAPERED, UNMOUNTED		
United States	**810.4**	**735.5**
35624, MOUNTED BEARINGS, EXCEPT PLAIN		
United States	**359.4**	**300.4**
35629, PARTS FOR BALL AND ROLLER BEARINGS, EXCEPT CUPS AND CONES		
United States	**429.4**	**425.5**
Connecticut	37.3	35.0
Georgia	67.4	(NA)
Illinois	29.0	(NA)
Indiana	53.9	31.8
New Jersey	4.9	(NA)
South Carolina	45.0	45.3

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
35631, AIR AND GAS COMPRESSORS AND VACUUM PUMPS		
United States	**2 054.7**	**1 259.8**
California	29.5	18.2
Florida	7.5	(NA)
Illinois	72.1	73.0
Indiana	136.0	(NA)
Massachusetts	75.6	(NA)
Missouri	61.8	47.8
New York	314.2	142.1
Ohio	216.7	135.7
Oklahoma	68.4	54.0
Pennsylvania	201.5	93.7
Texas	104.9	37.4
Virginia	35.4	(NA)
35632, PARTS AND ATTACHMENTS FOR AIR AND GAS COMPRESSORS, EXCEPT REFRIGERATION COMPRESSORS		
United States	**735.7**	**538.5**
California	10.9	(NA)
Illinois	37.9	(NA)
Indiana	10.7	(NA)
Kentucky	55.8	(NA)
Louisiana	2.5	(NA)
New Jersey	6.9	(NA)
Ohio	63.8	46.7
Oklahoma	9.1	(NA)
Pennsylvania	164.2	67.8
Texas	34.8	7.2
35635, INDUSTRIAL SPRAYING EQUIPMENT		
United States	**705.0**	**669.1**
California	28.2	14.2
Indiana	25.9	(NA)
Ohio	4.5	25.0
Texas	18.8	35.0
Wisconsin	5.3	(NA)
35643, CENTRIFUGAL FANS AND BLOWERS		
United States	**741.8**	**587.6**
Alabama	13.3	5.5
California	47.6	41.5
Illinois	130.2	97.6
Missouri	45.4	40.9
New York	78.0	65.1
Ohio	79.2	75.4
Pennsylvania	27.0	19.2
Wisconsin	16.3	(NA)
35644, PROPELLER FANS AND ACCESSORIES, AXIAL FANS AND POWER ROOF VENTILATORS, AND PARTS		
United States	**621.7**	**464.7**
Colorado	5.0	(NA)
Illinois	38.0	29.4
Indiana	31.5	46.0
Michigan	17.8	16.2
Missouri	29.9	(NA)
New York	78.4	77.6
Ohio	133.6	77.5
Pennsylvania	27.7	(NA)
Texas	20.1	10.2
35645, DUST COLLECTION AND OTHER AIR PURIFICATION EQUIPMENT FOR CLEANING INCOMING AIR		
United States	**959.1**	**574.9**
Alabama	3.0	(NA)
California	73.0	84.5
Florida	31.7	12.7
Illinois	79.7	30.0
Indiana	16.3	(NA)
Kentucky	52.5	29.0
Maryland	53.0	28.0
Michigan	13.6	11.5
Minnesota	8.4	(NA)
New Jersey	43.2	23.2
New York	13.9	24.8
North Carolina	109.8	80.0
Ohio	68.4	40.0
Pennsylvania	33.5	48.3
Texas	40.3	13.7
Virginia	8.0	(NA)
Wisconsin	9.1	19.4
35646, DUST COLLECTION AND OTHER AIR PURIFICATION EQUIPMENT FOR INDUSTRIAL GAS CLEANING SYSTEMS (FOR CLEANING OUTGOING AIR)		
United States	**545.0**	**296.9**
California	50.9	(NA)
Illinois	6.0	(NA)
Kentucky	43.6	(NA)
Michigan	39.1	(NA)
North Carolina	4.5	37.0
Ohio	19.0	(NA)
Pennsylvania	82.5	65.1
Texas	32.4	(NA)
35651, PACKING, PACKAGING, AND BOTTLING MACHINERY, EXCEPT PARTS		
United States	**2 208.0**	**1 690.4**
Alabama	10.3	(NA)
Arkansas	3.8	(NA)
California	244.1	121.9
Colorado	10.2	3.8
Connecticut	27.0	13.0
Florida	100.6	75.7
Georgia	75.7	35.4
Illinois	275.4	258.8
Louisiana	19.1	(NA)
Maryland	56.1	(NA)
Massachusetts	53.6	27.5
Michigan	61.6	31.7
Minnesota	138.0	74.8
Missouri	26.3	11.6
New Jersey	96.2	117.7
New York	69.9	63.9
North Carolina	39.9	17.8
Ohio	294.3	236.9
Oregon	4.2	(NA)
Pennsylvania	66.6	57.3
South Carolina	56.1	56.6
Texas	45.8	33.6
Virginia	16.9	6.6
Washington	45.0	107.3
Wisconsin	205.5	121.5
35652, PARTS FOR PACKING, PACKAGING, AND BOTTLING MACHINERY		
United States	**427.7**	**303.8**
California	51.4	36.4
Florida	9.9	9.0
Illinois	47.8	20.5
Louisiana	2.7	(NA)
Minnesota	14.9	13.4
New Jersey	22.3	17.0
New York	15.1	7.9
North Carolina	4.1	6.6
Ohio	28.4	17.1
Pennsylvania	16.6	9.5
South Carolina	23.4	22.4
Washington	6.2	2.2
Wisconsin	54.0	42.7
35671, ELECTRIC INDUSTRIAL FURNACES, OVENS, AND KILNS		
United States	**406.4**	**367.7**
Illinois	47.3	45.9
Indiana	6.1	(NA)
Massachusetts	41.6	(NA)
Michigan	14.2	8.7
Minnesota	17.3	(NA)
New Jersey	34.8	20.3
Ohio	26.5	36.2
Oregon	8.8	(NA)
Pennsylvania	33.0	44.9
Wisconsin	22.0	18.8
35674, HIGH-FREQUENCY INDUCTION AND DIELECTRIC HEATING EQUIPMENT		
United States	**155.7**	**126.2**
Michigan	24.1	28.0

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
35675, ELECTRICAL HEATING EQUIPMENT FOR INDUSTRIAL USE, N.E.C. (EXCEPT SOLDERING IRON), AND PARTS AND ATTACHMENTS		
United States	**645.1**	**321.5**
California	186.3	37.9
Illinois	25.2	23.5
Indiana	14.6	13.4
Massachusetts	12.2	15.3
Michigan	44.9	16.0
New Jersey	9.5	5.9
New York	13.4	14.2
North Carolina	12.2	(NA)
Ohio	25.0	22.4
Pennsylvania	24.2	29.9
Wisconsin	23.6	(NA)
35676, FUEL-FIRED INDUSTRIAL FURNACES, OVENS, AND KILNS		
United States	**355.7**	**263.6**
California	3.4	6.8
Connecticut	3.8	(NA)
Illinois	9.6	9.5
Kansas	6.8	2.3
Michigan	48.5	51.5
New Jersey	3.3	(NA)
New York	2.2	2.5
Ohio	54.9	35.0
Oklahoma	24.4	(NA)
Pennsylvania	90.5	63.7
Texas	10.1	(NA)
Wisconsin	35.9	17.0
35681, PLAIN BEARINGS AND BUSHINGS		
United States	**346.0**	**373.8**
California	41.3	58.3
Illinois	76.9	62.5
Indiana	21.3	18.0
Ohio	24.0	36.7
Wisconsin	32.5	24.8
35683, MECHANICAL POWER TRANSMISSION EQUIPMENT, EXCEPT SPEED CHANGERS, DRIVES, AND GEARS, N.E.C.		
United States	**1 862.7**	**1 555.2**
California	20.5	8.8
Connecticut	27.9	28.0
Illinois	243.1	263.9
Indiana	120.3	145.0
Michigan	88.1	109.9
Minnesota	32.1	34.0
New Jersey	46.5	26.3
New York	104.0	45.9
North Carolina	96.0	39.8
Ohio	210.9	102.6
Oregon	17.2	12.7
Pennsylvania	116.9	75.8
Texas	76.6	69.5
Wisconsin	269.4	215.7
35693, FILTERS AND STRAINERS, EXCEPT FLUID POWER		
United States	**1 810.3**	**1 159.5**
California	116.1	79.2
Connecticut	95.0	69.8
Florida	70.7	36.9
Illinois	107.3	97.6
Indiana	59.0	42.2
Louisiana	15.9	(NA)
Massachusetts	91.3	109.8
Michigan	151.7	106.0
Minnesota	72.5	(NA)
Missouri	7.1	(NA)
New Jersey	69.0	55.1
New York	145.7	92.3
North Carolina	86.7	59.7
Ohio	72.1	56.8
Oklahoma	5.8	22.8
Pennsylvania	53.4	54.4
Texas	23.2	18.5
Virginia	5.2	(NA)
Wisconsin	90.6	37.2
35694, FILTERS FOR HYDRAULIC FLUID POWER SYSTEMS, NONAEROSPACE		
United States	**223.4**	**(NA)**
California	11.0	(NA)
Michigan	5.2	(NA)
35695, FILTERS FOR PNEUMATIC FLUID POWER SYSTEMS, NONAEROSPACE		
United States	**72.0**	**(NA)**
Michigan	2.4	(NA)
35696, FILTERS FOR HYDRAULIC AND PNEUMATIC FLUID POWER SYSTEMS, AEROSPACE		
United States	**70.6**	**(NA)**
California	30.1	(NA)
35699, GENERAL INDUSTRIAL MACHINERY, N.E.C.		
United States	**2 672.6**	**(NA)**
Alabama	22.6	(NA)
California	226.7	(NA)
Colorado	21.9	(NA)
Connecticut	33.3	(NA)
Florida	91.3	(NA)
Georgia	42.2	(NA)
Illinois	134.0	(NA)
Indiana	75.9	(NA)
Iowa	52.9	(NA)
Kansas	18.2	(NA)
Massachusetts	63.4	(NA)
Michigan	373.1	(NA)
Minnesota	90.9	(NA)
Missouri	32.7	(NA)
New Jersey	92.5	(NA)
New York	232.1	(NA)
North Carolina	82.6	(NA)
Ohio	157.6	(NA)
Oklahoma	7.9	(NA)
Oregon	24.0	(NA)
Pennsylvania	247.5	(NA)
Rhode Island	8.4	(NA)
Texas	117.4	(NA)
Virginia	41.7	(NA)
Washington	51.8	(NA)
Wisconsin	72.1	(NA)

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

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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
3561-	**Pumps and pumping equipment**	**4 603.3**	**4 478.7**	**4 220.8**	**3 976.3**	**3 822.8**	**3 447.6**	**(NA)**	**(NA)**
35611	Industrial pumps, except fluid power pumps	2 390.7	2 267.2	2 092.8	2 005.2	1 838.4	1 659.8	1 916.9	1 386.7
35613	Domestic water systems	317.6	313.6	294.7	302.6	322.1	276.9	215.5	223.8
35615	Pumps, n.e.c.	697.6	566.7	528.1	490.9	504.0	446.9	1 050.5	395.7
35616	Parts and attachments for pumps and pumping equipment (except for hydraulic fluid power and air and gas compressors)	1 103.8	1 158.6	1 119.3	973.2	977.0	875.3	1 298.9	861.6
35610	Pumps and pumping equipment, n.s.k.	93.7	172.5	185.7	204.5	181.2	188.9	(NA)	(NA)
3562-	**Ball and roller bearings**	**4 138.6**	**3 892.7**	**4 241.9**	**4 161.2**	**3 988.8**	**3 563.8**	**2 973.1**	**2 444.5**
35621	Ball bearings, complete, unmounted	1 555.1	1 418.7	1 509.6	1 462.8	1 451.8	1 306.1	1 087.1	749.9
35622	Tapered roller bearings (including cups and cones), unmounted	936.1	884.3	992.5	954.0	731.5	756.2	710.9	748.6
35623	Roller bearings, except tapered, unmounted	810.4	787.7	833.5	834.6	834.6	735.5	614.1	472.9
35624	Mounted bearings, except plain	359.4	321.9	362.6	362.1	385.5	300.4	241.7	213.1
35629	Parts for ball and roller bearings, except cups and cones	429.4	432.7	480.6	483.0	503.0	425.5	298.4	243.1
35620	Ball and roller bearings, n.s.k.	48.2	47.4	63.1	64.7	82.5	40.2	20.9	16.8
3563-	**Air and gas compressors**	**3 541.8**	**3 607.0**	**3 548.4**	**3 245.8**	**3 034.7**	**2 628.9**	**2 799.8**	**1 923.4**
35631	Air and gas compressors and vacuum pumps	2 054.7	1 839.4	1 743.8	1 565.1	1 490.3	1 259.8	[2]1 630.7	1 290.3
35632	Parts and attachments for air and gas compressors, except refrigeration compressors	735.7	826.5	831.9	779.9	665.0	538.5	652.7	384.1
35635	Industrial spraying equipment	705.0	840.3	882.5	813.8	713.7	669.1	442.0	221.6
35630	Air and gas compressors, n.s.k.	46.4	100.7	90.1	87.0	165.7	161.6	74.4	27.4
3564-	**Blowers and fans**	**2 999.9**	**2 762.8**	**2 755.5**	**2 615.1**	**2 435.8**	**2 181.6**	**1 994.5**	**1 422.3**
35643	Centrifugal fans and blowers	741.8	859.2	821.5	743.3	732.0	587.6	556.9	354.1
35644	Propeller fans and accessories, axial fans and power roof ventilators, and parts	621.7	535.4	563.4	601.1	555.6	464.7	464.8	303.3
35645	Dust collection and other air purification equipment for cleaning incoming air	959.1	717.1	758.9	672.9	632.3	574.9	425.5	260.7
35646	Dust collection and other air purification equipment for industrial gas cleaning systems (for cleaning outgoing air)	545.0	377.7	311.0	341.8	350.6	296.9	425.6	381.7
35640	Blowers and fans, n.s.k.	132.5	273.3	300.6	256.0	165.4	257.4	121.7	122.5
3565-	**Packaging machinery**	**2 836.7**	**2 767.0**	**2 680.3**	**2 342.5**	**2 153.3**	**2 039.9**	**(NA)**	**(NA)**
35651	Packing, packaging, and bottling machinery, except parts	2 208.0	2 162.8	2 125.4	1 894.7	1 755.0	1 690.4	1 343.4	931.5
35652	Parts for packing, packaging, and bottling machinery	427.7	465.2	416.1	359.5	347.9	303.8	301.5	
35650	Packaging machinery, n.s.k.	201.0	139.1	138.8	88.3	50.4	45.7	(NA)	(NA)
3566-	**Speed changers, drives, and gears**	**1 693.5**	**1 829.0**	**2 023.2**	**1 874.8**	**1 773.0**	**1 541.4**	**1 557.4**	**1 199.7**
35660	Speed changers, industrial high-speed drives, and gears	1 693.5	1 829.0	2 023.2	1 874.8	1 773.0	1 541.4	1 557.4	1 199.7
3567-	**Industrial furnaces and ovens**	**1 709.0**	**1 682.7**	**1 738.0**	**1 672.5**	**1 414.3**	**1 235.5**	**1 026.8**	**707.1**
35671	Electric industrial furnaces, ovens, and kilns	406.4	369.8	407.4	482.6	398.6	367.7	295.2	140.3
35674	High-frequency induction and dielectric heating equipment	155.7	173.9	186.0	190.5	140.2	126.2	131.9	133.4
35675	Electrical heating equipment for industrial use, n.e.c. (except soldering iron), and parts and attachments	645.1	602.2	561.2	511.4	448.7	321.5	289.1	204.1
35676	Fuel-fired industrial furnaces, ovens, and kilns	355.7	394.9	418.1	344.3	249.5	263.6	248.6	144.4
35670	Industrial furnaces and ovens, n.s.k.	146.1	141.8	165.4	143.7	177.4	156.4	62.0	84.9
3568-	**Power transmission equipment, n.e.c.**	**2 325.4**	**2 378.7**	**2 538.5**	**2 539.3**	**2 414.1**	**2 071.0**	**1 985.6**	**1 710.9**
35681	Plain bearings and bushings	346.0	397.3	435.9	443.9	464.8	373.8	385.0	275.1
35683	Mechanical power transmission equipment, except speed changers, drives, and gears, n.e.c.	1 862.7	1 837.4	1 958.8	1 952.4	1 822.9	1 555.2	1 556.3	1 419.1
35680	Power transmission equipment, n.e.c., n.s.k.	116.7	144.0	143.8	143.0	126.4	142.0	44.3	16.6
3569-	**General industrial machinery, n.e.c.**	**5 093.3**	**4 882.3**	**4 848.4**	**4 547.0**	**4 168.6**	**3 840.5**	**(NA)**	**(NA)**
35693	Filters and strainers, except fluid power	1 810.3	1 683.4	1 560.9	1 522.0	1 345.0	1 159.5	1 137.4	(NA)
35694	Filters for hydraulic fluid power systems, nonaerospace	223.4	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
35695	Filters for pneumatic fluid power systems, nonaerospace	72.0	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
35696	Filters for hydraulic and pneumatic fluid power systems, aerospace	70.6	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
35699	General industrial machinery, n.e.c.	2 672.6	2 196.8	2 003.1	1 826.9	2 023.8	1 736.0	(NA)	(NA)
35690	General industrial machinery, n.e.c., n.s.k.	244.4	811.5	1 063.1	974.6	524.7	670.6	(NA)	(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.

[2]Data exclude pneumatic air motors and parts which accounted for less than three percent of this product class in 1982.

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 3561, PUMPS AND PUMPING EQUIPMENT		
	Materials, ingredients, containers, and supplies	**2 129.4**	**1 594.3**
190090	Fluid power products	186.0	133.6
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	43.4	22.7
346901	Metal stampings	27.1	15.1
349002	Pipe, valves, and pipe fittings, except plumbers'	25.0	24.9
344301	Metal tanks, heat exchangers, steam condensers, and other boiler products, fabricated steel plate, and weldments	24.8	17.5
340057	All other fabricated metal products	52.4	(1)
	Forgings:		
346200	Iron and steel	28.6	11.1
346300	Nonferrous	5.7	(1)
	Castings (rough and semifinished):		
332001	Iron and steel	298.1	171.7
336005	Aluminum and aluminum-base alloy	39.4	22.9
336003	Other nonferrous	70.8	49.0

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 3561, PUMPS AND PUMPING EQUIPMENT—Con.		
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	109.4	
331022	Sheet and strip	16.6	115.8
331034	Other steel shapes and forms	10.4	
335105	Copper and copper-base alloy	11.3	8.3
335001	Aluminum and aluminum-base alloy	4.4	1.5
335099	Other nonferrous shapes and forms	12.9	1.4
351910	Engines (diesel, semidiesel, gasoline, and other carburetor)	56.7	23.4
	Electric motors and generators:		
362115	Fractional horsepower electric motors (less than 1 hp), except timing motors	176.0	141.5
362120	Integral horsepower electric motors and generators (1 hp or more)	169.3	90.1
356200	Ball and roller bearings (mounted or unmounted)	19.9	14.6
265001	Paperboard containers, boxes, and corrugated paperboard	19.5	11.2
306001	Fabricated rubber products, except gaskets	23.0	68.4
308006	Fabricated plastics products, except gaskets	46.7	
305302	Gaskets (all types) and packing and sealing devices	33.4	18.4
360101	Electrical transmission, distribution, and control equipment	55.1	33.7
285100	Paints, varnishes, stains, lacquers, shellacs, japans, enamels, and allied products	4.9	(1)
970099	All other materials and components, parts, containers, and supplies	293.3	[1]365.5
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	265.4	232.0
	INDUSTRY 3562, BALL AND ROLLER BEARINGS		
	Materials, ingredients, containers, and supplies	**1 499.0**	**1 312.2**
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	27.0	24.4
340098	Other fabricated metal products	18.0	(3)
	Forgings:		
	Iron and steel:		
346201	Cold	26.5	153.8
346209	Other	150.8	
346300	Nonferrous	(4)	(3)
	Castings (rough and semifinished):		
332001	Iron and steel	44.2	30.9
336010	Nonferrous	6.5	.8
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	184.0	
331022	Sheet and strip	59.2	332.2
331034	Other steel shapes and forms	128.0	
335105	Copper and copper-base alloy	(4)	.6
335090	Other nonferrous shapes and forms	7.7	(3)
190060	Scrap, including iron, steel, aluminum, etc. (except home scrap)	(4)	(3)
	Bearings (mounted or unmounted):		
356218	Ball	16.0	12.0
356201	Roller	17.6	16.2
356295	Balls, rollers, cages, collars, races, and other antifriction bearing components and parts	376.0	351.4
356835	Clutches, couplings, shafts, sprockets, and other mechanical power transmission equipment	4.5	(3)
362105	Electric motors, generators, and parts	5.7	(3)
265001	Paperboard containers, boxes, and corrugated paperboard	12.6	(3)
970099	All other materials and components, parts, containers, and supplies	[4]363.9	[3]298.7
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	50.8	91.2
	INDUSTRY 3563, AIR AND GAS COMPRESSORS		
	Materials, ingredients, containers, and supplies	**1 629.9**	**1 345.2**
190090	Fluid power products	63.3	67.7
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	39.4	31.3
346901	Metal stampings	12.6	8.0
349002	Pipe, valves, and pipe fittings, except plumbers'	39.1	32.6
344301	Metal tanks, heat exchangers, steam condensers, and other boiler products, fabricated steel plate, and weldments	64.7	71.2
340057	All other fabricated metal products	84.1	(5)
	Forgings:		
346200	Iron and steel	42.3	15.1
346300	Nonferrous	1.1	(5)
	Castings (rough and semifinished):		
332001	Iron and steel	130.2	98.6
336005	Aluminum and aluminum-base alloy	28.1	16.9
336003	Other nonferrous	5.0	8.2
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	49.3	
331022	Sheet and strip	29.4	112.9
331034	Other steel shapes and forms	10.9	
335105	Copper and copper-base alloy	5.2	11.8
335001	Aluminum and aluminum-base alloy	3.8	(5)
335099	Other nonferrous shapes and forms	8.9	(5)
351910	Engines (diesel, semidiesel, gasoline, and other carburetor)	92.6	54.8
	Electric motors and generators:		
362115	Fractional horsepower electric motors (less than 1 hp), except timing motors	52.9	80.6
362120	Integral horsepower electric motors and generators (1 hp or more)	83.2	60.6

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 3563, AIR AND GAS COMPRESSORS—Con.		
356200	Ball and roller bearings (mounted or unmounted)	19.5	17.5
265001	Paperboard containers, boxes, and corrugated paperboard	14.2	10.4
306001	Fabricated rubber products, except gaskets	6.5	30.2
308006	Fabricated plastics products, except gaskets	27.8	
305302	Gaskets (all types) and packing and sealing devices	28.6	12.7
360101	Electrical transmission, distribution, and control equipment	68.2	13.7
285100	Paints, varnishes, stains, lacquers, shellacs, japans, enamels, and allied products	7.2	(5)
970099	All other materials and components, parts, containers, and supplies	370.2	5406.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	241.5	184.3
	INDUSTRY 3564, BLOWERS AND FANS		
	Materials, ingredients, containers, and supplies	**1 189.8**	**872.4**
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, rivets, washers, and screw machine products	16.6	10.6
340097	Other fabricated metal products (except electrical enclosures)	66.8	(6)
346000	Forgings	9.7	(6)
	Castings (rough and semifinished):		
332001	Iron and steel	30.1	36.7
336005	Aluminum and aluminum-base alloy	16.3	15.7
336003	Other nonferrous	1.5	1.5
	Shapes and forms, except castings, forgings, and fabricated metal products: Steel:		
331007	Bars, bar shapes, and plates	44.1	
331022	Sheet and strip	98.2	153.3
331023	Structural shapes and sheet piling	11.9	
331091	All other steel shapes and forms	19.7	
335105	Copper and copper-base alloy	2.1	6.6
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	27.0	36.2
335011	All other (except sheet, plate, foil, and welded tubing)	9.3	5.6
335099	Other nonferrous shapes and forms	4.6	(6)
	Electric motors and generators:		
362111	Fractional horsepower electric motors (less than 1 hp)	48.3	37.6
362120	Integral horsepower motors and generators (1 hp or more)	69.6	37.3
356200	Ball and roller bearings (mounted or unmounted)	20.7	17.7
190091	Electrical enclosures (metal and plastics)	7.5	(6)
356490	Air filtration systems and parts	30.2	(6)
265001	Paperboard containers, boxes, and corrugated paperboard	19.9	(6)
190003	Flexible packaging materials	1.6	(6)
970099	All other materials and components, parts, containers, and supplies	412.1	6340.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	222.0	172.8
	INDUSTRY 3565, PACKAGING MACHINERY		
	Materials, ingredients, containers, and supplies	**1 062.6**	**669.8**
	Pumps:		
359412	Hydraulic and pneumatic fluid power pumps, motors, and hydrostatic transmissions	8.0	3.9
356102	Other pumps	4.8	(7)
190090	Fluid power products, except pumps, motors, hydrostatic transmissions, and hose	22.5	84.4
	Mechanical power transmission equipment:		
356601	Speed changers, gears, and industrial high-speed drives	22.8	11.5
356200	Ball and roller bearings (mounted or unmounted)	17.0	14.0
356820	Other mechanical power transmission equipment	25.4	(7)
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, rivets, washers, and screw machine products	23.7	(7)
340078	Other fabricated metal products, except fluid power products	96.5	(7)
346000	Forgings	1.3	(7)
	Castings (rough and semifinished):		
332001	Iron and steel	20.7	13.2
336005	Aluminum and aluminum-base alloy	12.4	12.7
336003	Other nonferrous	3.9	2.5
	Shapes and forms, except castings, forgings, and fabricated metal products: Steel:		
331031	Stainless	29.4	12.2
331025	All other	28.5	44.1
335010	Aluminum and aluminum-base alloy	9.9	7.8
335091	All other nonferrous shapes and forms	4.8	(NA)
362510	Relays and industrial controls for drives, clutches, brakes, motors, etc., including programmable controllers	56.1	940.1
361010	Transformers (except electronic-type) and other electric power transmission and distribution equipment	12.8	
	Electric motors and generators:		
362115	Fractional horsepower electric motors, excluding timing motors	16.3	8.5
362120	Integral horsepower motors and generators (1 hp or more)	10.4	8.8
	Purchased devices for incorporation into complete finished products:		
356501	Filler devices (volumetric and others)	5.7	(7)
359601	Weighing machines and scales	3.1	(7)
356502	Coding, code dating, and marking devices, including imprinting and labeling	4.5	(7)
190065	Detection devices, including checkweighing and metal detection	4.5	(7)
356503	Adhesive devices (hot melt and cold glue)	10.4	(7)
353501	Conveyors and conveying equipment	6.4	(7)
356504	Accumulating, collating, feeding, and unscrambling machinery	3.8	(7)
970099	All other materials and components, parts, containers, and supplies	322.6	7252.4
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	274.5	233.6

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 3566, SPEED CHANGERS, DRIVES, AND GEARS		
	Materials, ingredients, containers, and supplies	**539.6**	**456.0**
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	17.1	9.6
340098	Other fabricated metal products	18.3	(10)
	Forgings:		
	Iron and steel:		
346201	Cold	16.3	12.1
346209	Other	31.9	32.3
346300	Nonferrous	2.6	(10)
	Castings (rough and semifinished):		
332001	Iron and steel	60.0	58.8
336010	Nonferrous	12.4	6.4
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	46.5	
331022	Sheet and strip	.8	80.1
331034	Other steel shapes and forms	3.6	
335105	Copper and copper-base alloy	5.5	2.4
335090	Other nonferrous shapes and forms	4.3	(10)
190060	Scrap, including iron, steel, aluminum, etc. (except home scrap)	(11)	3.3
	Bearings (mounted or unmounted):		
356218	Ball	16.2	12.2
356201	Roller	22.9	13.9
356295	Balls, rollers, cages, collars, races, and other antifriction bearing components and parts	1.4	2.7
356835	Clutches, couplings, shafts, sprockets, and other mechanical power transmission equipment	44.6	(10)
362105	Electric motors, generators, and parts	47.4	(10)
265001	Paperboard containers, boxes, and corrugated paperboard	4.0	(10)
970099	All other materials and components, parts, containers, and supplies	11107.4	10166.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	76.4	55.3
	INDUSTRY 3567, INDUSTRIAL FURNACES AND OVENS		
	Materials, ingredients, containers, and supplies	**673.4**	**544.7**
190090	Fluid power products	21.6	(12)
	Fabricated metal products, except forgings:		
346901	Metal stampings	4.0	(12)
340058	All other fabricated metal products, except fluid power products	48.6	(12)
346000	Forgings	1.0	(12)
	Castings (rough and semifinished):		
332001	Iron and steel	4.3	136.6
336010	Nonferrous	3.4	(12)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	18.1	
331022	Sheet and strip	24.7	
331023	Structural shapes and sheet piling	8.2	64.3
331091	All other steel shapes and forms	15.6	
335105	Copper and copper-base alloy	5.3	8.7
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	7.0	5.1
335011	All other (except sheet, plate, foil, and welded tubing)	1.9	6.5
335099	Other nonferrous shapes and forms	6.9	(12)
360101	Electrical distribution, transmission, and control equipment	67.3	47.4
356751	Electric heating elements for industrial furnaces, ovens, and kilns	18.5	15.8
970099	All other materials and components, parts, containers, and supplies	266.2	12245.9
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	150.9	144.4
	INDUSTRY 3568, POWER TRANSMISSION EQUIPMENT, N.E.C.		
	Materials, ingredients, containers, and supplies	**740.5**	**646.0**
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	28.2	14.4
340098	Other fabricated metal products	33.9	(14)
	Forgings:		
	Iron and steel:		
346201	Cold	15.8	23.2
346209	Other	13.9	17.0
346300	Nonferrous	.2	(14)
	Castings (rough and semifinished):		
332001	Iron and steel	60.4	64.0
336010	Nonferrous	23.5	7.6
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	109.5	
331022	Sheet and strip	43.7	166.4
331034	Other steel shapes and forms	22.7	
335105	Copper and copper-base alloy	8.9	12.9
335090	Other nonferrous shapes and forms	9.3	(14)
190060	Scrap, including iron, steel, aluminum, etc. (except home scrap)	(D)	9.0
	Bearings (mounted or unmounted):		
356218	Ball	10.4	6.7
356201	Roller	5.5	9.0

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 3568, POWER TRANSMISSION EQUIPMENT, N.E.C.—Con.		
356295	Balls, rollers, cages, collars, races, and other antifriction bearing components and parts	(D)	8.2
356835	Clutches, couplings, shafts, sprockets, and other mechanical power transmission equipment	15.8	(14)
362105	Electric motors, generators, and parts	12.4	15.2
265001	Paperboard containers, boxes, and corrugated paperboard	6.9	(14)
970099	All other materials and components, parts, containers, and supplies	148.0	14228.8
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	154.5	63.6
	INDUSTRY 3569, GENERAL INDUSTRIAL MACHINERY, N.E.C.		
	Materials, ingredients, containers, and supplies	**1 951.6**	**1 410.3**
360101	Electrical transmission, distribution, and control equipment	40.9	16.5
	Pumps, complete assemblies:		
359412	Hydraulic and pneumatic fluid power pumps, motors, and hydrostatic transmissions	21.7	5.4
356101	Other pumps and pump parts, except fluid power	19.0	7.7
	Fluid power products (hydraulic and pneumatic), except pumps and motors:		
349271	Valves	14.1	4.8
359301	Cylinders and rotary actuators	12.2	4.7
349261	Hose or tube fittings and assemblies	10.2	(15)
356921	Filters	49.9	(15)
190089	Other fluid power products	5.1	(15)
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	28.5	15.2
344301	Metal tanks, heat exchangers, steam condensers, and other boiler products, fabricated steel plate, and weldments	27.5	13.0
349402	Pipe, valves, and pipe fittings	31.1	22.8
340072	Other fabricated metal products, except fluid power	125.8	167.3
346000	Forgings	3.5	(15)
	Castings (rough and semifinished):		
332001	Iron and steel	77.2	56.8
336005	Aluminum and aluminum-base alloy	17.7	12.4
336003	Other nonferrous	17.2	18.2
	Shapes and forms, except castings, forgings and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plates	65.1	
331022	Sheet and strip	52.0	
331023	Structural shapes and sheet piling	13.6	128.0
331091	All other steel shapes and forms	30.0	
	Aluminum and aluminum-base alloy:		
335301	Sheet, plate, foil, and welded tubing	20.8	7.3
335011	All other (except sheet, plate, foil, and welded tubing)	6.4	6.2
335091	Other nonferrous	21.5	1710.8
	Electric motors and generators:		
362115	Fractional horsepower electric motors, excluding timing motors	8.0	20.3
362120	Integral horsepower electric motors and generators (1 hp or more)	25.1	18.9
356200	Ball and roller bearings (mounted or unmounted)	13.0	8.6
356601	Speed changers, gears, and industrial high-speed drives	16.0	19.6
356301	Air and gas compressors except refrigeration compressors	5.4	2.9
262195	Filter paper	97.3	(15)
970099	All other materials and components, parts, containers, and supplies	691.3	15505.1
971000	Materials, ingredients, containers, and supplies, n.s.k.[2]	384.4	497.8

[1]For 1987, material codes 285100, 340057, and 346300 are combined with material code 970099 because they were not collected separately.
[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.
[3]For 1987, material codes were combined to avoid disclosing data for individual companies.
[4]For 1992, material codes are combined to avoid disclosing data for individual companies.
[5]For 1987, material codes 285100, 340057, and 346300 are combined with material code 970099 because they were not collected separately; for 1987, material codes 335001 and 335099 are combined with material code 970099 to avoid disclosing data for individual companies.
[6]For 1987, material codes 190003, 190091, 265001, 335099, 340097, 346000, and 356490 are combined with material code 970099 because they were not collected separately.
[7]For 1987, material codes 190065, 340078, 345001, 346000, 353501, 356102, 356501, 356502, 356503, 356504, 356820, and 359601 are combined with material code 970099 because they were not collected separately.
[8]For 1987, figure includes hydraulic and pneumatic valves only. Data for other fluid power products were not collected separately for 1987 but included in material code 970099.
[9]For 1987, figure includes electrical transmission, distribution, and control equipment. Other subsets of what became material codes 362510 and 361010 for 1992 were not collected separately for 1987 but were included in material code 970099.
[10]For 1987, material codes 265001, 335090, 340098, 346300, and 356835 are combined with material code 970099 because they were not collected separately; for 1987, material code 362105 is combined with material code 970099 to avoid disclosing data for individual companies.
[11]For 1992, material codes 190060 and 970099 are combined to avoid disclosing data for individual companies.
[12]For 1987, material codes 190090, 335099, 336010, 340058, 346000, and 346901 are combined with material code 970099 because they were not collected separately.
[13]For 1987, figure includes rough and semifinished steel castings only. Data for iron castings were not collected separately for 1987 but were included in material code 970099.
[14]For 1987, material codes 265001, 335090, 340098, 346300, and 356835 are combined with material code 970099 because they were not collected separately.
[15]For 1987, material codes 190089, 262195, 346000, and 349261 are combined with material code 970099 because they were not collected separately; for 1987, material code 356921 is combined with material code 970099 to avoid disclosing data for individual companies.
[16]For 1987, figure includes metal stampings only. Data for other fabricated metal products included in material code 340072 were not collected separately for 1987 but included in material code 970099.
[17]For 1987, figure includes only copper pipe, tube, plate, sheet, rod, bar, mechanical wire, military cups and discs, and extruded and/or drawn shapes. Data for other copper forms were not collected separately for 1987 but included in material code 970099. Data for other nonferrous, nonaluminum shapes and forms are included in material code 970099 for 1987 to avoid disclosing data for individual companies.

TIPS UPF [MCD_SRB,J_SMITH] 5/23/95 10:04:07 EPCV22 TLP:35E.BTI;50 5/23/95 10:01:09 DATA:NONE UPF:DIR:35EDAT.UPF PAGE: 28
TSF:35E_92.DAT;1 5/23/95 10:01:33 UTF:35E_93.DAT;1 5/23/95 10:01:33 META:TIPS96-10012320.DAT;1 5/23/95 10:03:32

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
35451 67	35451 68
35451 74	35451 70
35451 74	35451 71
35451 74	35451 77
35451 79	35451 91
35451 79	35451 93
35451 81	35451 82
35451 81	35451 84
35455 73	35455 94
35455 73	35455 95
35455 77	35455 81
35455 77	35455 91
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
35464 09	35461 07
35464 09	35461 09
35464 15	35461 01
35464 15	35461 03
35464 15	35461 04
35464 15	35461 05
35464 15	35461 07
35464 15	35461 09
35464 19	35461 12
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35464 19	35461 32
35464 19	35461 33
35464 19	35461 34
35464 19	35461 35
35464 19	35461 37
35464 21	35461 36
35465	35461
35465 02	35461 01
35465 02	35461 03
35465 02	35461 04
35465 05	35461 05
35465 07	35461 07
35465 09	35461 09
35465 11	35461 18
35465 12	35461 12
35465 13	35461 19
35465 14	35461 18
35465 14	35461 19
35465 15	35461 15
35465 16	35461 16
35465 17	35461 17
35465 21	35461 21
35465 22	35461 22
35465 23	35461 23
35465 24	35461 26
35465 25	35461 25
35465 27	35461 26
35465 28	35461 28
35465 29	35461 29
35465 31	35461 31
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35465 37	35461 37
35465 38	35461 34
35465 38	35461 35
35465 39	35461 35
35465 41	35461 32
35465 43	35461 32
35473 41	35473 48
35473 43	35473 48
35473 49	35473 48
35481 14	35481 01
35481 14	35481 02
35481 15	35481 05
35481 15	35481 06
35482 09	35482 01
35482 09	35482 02
35482 17	35482 07
35482 17	35482 08
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
35534 13	35534 07
35534 13	35534 08
35534 13	35534 09
35551 01	35551 02
35551 03	35551 02
35552 03	35552 38
35552 05	35552 38
35552 09	35552 01
35552 09	35552 37
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
35562 89	35562 91
35563 19	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
35592 04	35592 03
35592 04	35592 05
35592 15	35592 09
35593 41	35593 27
35593 41	35593 28
35593 41	35593 29
35594 16	35594 09
35594 16	35594 13
35594 16	35594 15
35594 25	35594 17
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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
35598 11	35599 11
35598 13	35599 13
35598 15	35599 15
35598 17	35599 17
35598 19	35599 19
35598 22	35599 22
35598 25	35599 25
35598 27	35599 27
35598 29	35599 29
35598 31	35599 31
35598 35	35599 35
35598 36	35599 33
35598 36	35599 37
35598 39	35599 39
35598 41	35599 41
35598 43	35599 43
35598 45	35599 45
35598 48	35599 47
35598 48	35599 49
35598 51	35599 51
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35598 55	35599 55
35598 58	35599 57
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

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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
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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
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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
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35455 83	35455 79
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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
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35463 12	35463 19
35463 14	35463 19
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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
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35563 02	35563 19
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35594 19	35594 25
35594 21	35594 25
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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
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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
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35651 01	35651 23
35651 02	35651 25
35651 06	35651 27
35651 06	35651 28
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35651 09	35651 31
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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
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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
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35692	35695
35692	35696
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35697	35699
35697 00	35699 09
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35698 02	35699 51
35698 03	35699 03
35698 04	35699 51
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35698 06	35699 51
35698 07	35699 41
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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
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35783	35789
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35820 81	35820 39
35853 31	35853 32
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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
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35942 10	35949 00
35942 20	35949 00
35962 09	35962 12
35962 11	35962 12
35962 13	35962 14
35962 15	35962 14
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35962 19	35962 21

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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

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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.