

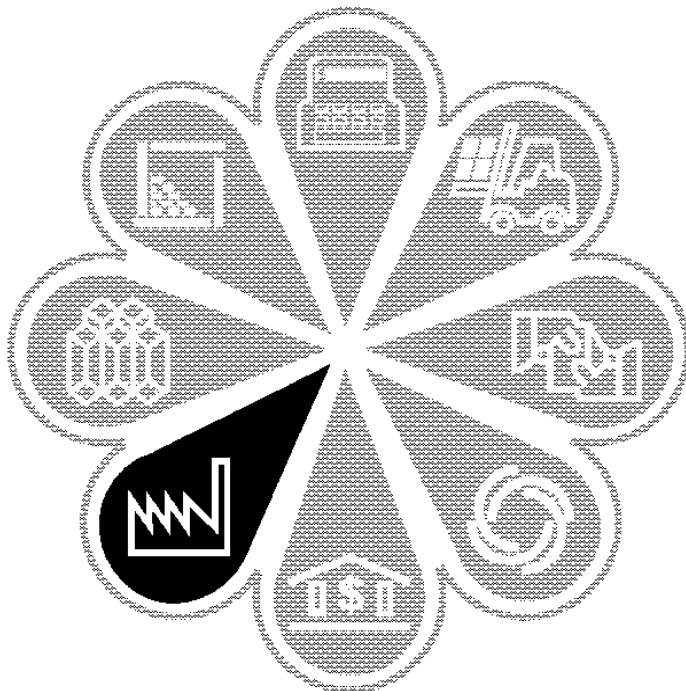
1992 Census of Manufactures

MC92-I-34F

INDUSTRY SERIES

Miscellaneous Fabricated Metal Products

Industries 3491, 3492, 3493, 3494, 3495,
3496, 3497, 3498, and 3499



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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 **Mendel D. Gayle**, Section Chief, with primary staff assistance by **Renee Reda**.

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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

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.

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

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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Census, ASM, and CIR		
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SIC's 24-30 (exc. 3021), 32	Michael Zampogna	301-457-4810
SIC's 33-35 (exc. 357)	Kenneth Hansen	301-457-4755
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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Miscellaneous Fabricated Metal Products

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Description of Industries and Summary of Findings

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

SIC code and title

3491	Industrial Valves
3492	Fluid Power Valves and Hose Fittings
3493	Steel Springs, Except Wire
3494	Valves and Pipe Fittings, N.E.C.
3495	Wire Springs
3496	Miscellaneous Fabricated Wire Products
3497	Metal Foil and Leaf
3498	Fabricated Pipe and Fittings
3499	Fabricated Metal Products, 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 3491, INDUSTRIAL VALVES

This industry is made up of establishments primarily engaged in manufacturing industrial valves. Establishments primarily engaged in manufacturing fluid power valves are classified in industry 3492; those manufacturing plumbing fixture fittings and trim are classified in industry 3432; and those manufacturing plumbing and heating valves are classified in industry 3499.

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 3491, Industrial Valves, had employment of 51.4 thousand. The employment figure was 12 percent above the 45.9 thousand reported in 1987. Compared with 1991, employment increased 12 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 Texas, California, Pennsylvania, and Iowa, accounting for approximately 32 percent of the industry's employment. This represents a shift from 1987 when Texas, California, Pennsylvania, and Illinois accounted for approximately 32 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was \$6.8 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 3491 shipped \$5.5 billion of industrial valves products considered primary to the industry, \$831.3 million of secondary products, and had \$424.2 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and

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.

primary products shipped by establishments in this industry was 87 percent (specialization ratio). In 1987, the specialization ratio was 84 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 88 percent.

The products primary to industry 3491, no matter in what industry they were produced, appear in table 6a and aggregate to \$6.1 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 industrial valves industry amounted to \$2.7 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 5 percent of the total value of shipments.

INDUSTRY 3492, FLUID POWER VALVES AND HOSE FITTINGS

This industry is made up of establishments primarily engaged in manufacturing hydraulic and pneumatic valves, hose and fittings, and hose assemblies for fluid power systems. Establishments primarily engaged in manufacturing fluid power cylinders are classified in industry 3593; those manufacturing fluid power pumps are classified in industry 3594; and those manufacturing hydraulic intake and exhaust motor vehicle valves are classified in industry 3592.

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 3492, Fluid Power Valves and Hose Fittings, had employment of 28.2 thousand. The employment figure was 1 percent above the 27.9 thousand reported in 1987.

The leading States in employment in 1992 were Ohio, California, Michigan, and Illinois, accounting for approximately 48 percent of the industry's employment. These same States were the leaders in 1987 when they accounted for 51 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was \$3.3 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 3492 shipped \$2.7 billion of fluid power valves and hose fittings products considered primary to the industry, \$386.7

million of secondary products, and had \$175.2 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 88 percent (specialization ratio). In 1987, the specialization ratio was 89 percent.

Establishments in this industry also accounted for 83 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 75 percent.

The products primary to industry 3492, no matter in what industry they were produced, appear in table 6a and aggregate to \$3.3 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 fluid power valves and hose fittings industry amounted to \$1.5 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 3 percent of the total value of shipments.

INDUSTRY 3493, STEEL SPRINGS, EXCEPT WIRE

This industry is made up of establishments primarily engaged in manufacturing leaf springs, hot wound springs, and coiled flat springs. Establishments primarily engaged in manufacturing wire springs are classified in industry 3495.

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 3493, Steel Springs, Except Wire, had employment of 4.4 thousand. The employment figure was 11 percent below the 5.0 thousand reported in 1987.

The leading States in employment in 1992 were Pennsylvania, Connecticut, Ohio, and Indiana, accounting for approximately 60 percent of the industry's employment. This represents a shift from 1987 when Pennsylvania, Indiana, Illinois, and Connecticut accounted for approximately 60 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was \$495.8 million.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3493 shipped \$380.5 million of steel springs, except wire, products considered primary to the industry, \$52.5 million

of secondary products, and had \$62.8 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 88 percent (specialization ratio). In 1987, the specialization ratio was 87 percent.

Establishments in this industry also accounted for 82 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 49 percent.

The products primary to industry 3493, no matter in what industry they were produced, appear in table 6a and aggregate to \$466.0 million. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the steel springs, except wire industry amounted to \$244.8 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 6 percent of the total value of shipments.

INDUSTRY 3494, VALVES AND PIPE FITTINGS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing metal valves and pipe fittings not elsewhere classified, such as plumbing and heating valves and pipe fittings, flanges, and unions, except from purchased pipes. Establishments primarily engaged in manufacturing plastics pipe fittings are classified in industry 3089; those manufacturing plumbing fixture fittings and trim are classified in industry 3432; and those manufacturing fittings and couplings for garden hose are classified in industry 3429. Establishments primarily engaged in manufacturing fluid power valves are classified in industry 3492, and those manufacturing other industrial valves are classified in industry 3491. Establishments primarily engaged in fabricated pipe fittings from purchased metal pipe by processes such as cutting, threading, and bending are classified in industry 3498.

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 3494, Valves and Pipe Fittings, N.E.C., had employment of 16.6 thousand. The employment figure was 34 percent below the 25.1 thousand reported in 1987. Compared with 1991, employment decreased 34 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 Pennsylvania, Ohio, Texas, and Illinois, accounting for approximately 49 percent of the industry's employment. This represents a shift from 1987 when Pennsylvania, Ohio, California, and Indiana accounted for approximately 44 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was \$2.0 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 3494 shipped \$1.6 billion of valves and pipe fittings, not elsewhere classified, products considered primary to the industry, \$265.3 million of secondary products, and had \$104.2 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 86 percent (specialization ratio). In 1987, the specialization ratio was 88 percent.

Establishments in this industry also accounted for 83 percent of products considered primary to the industry no matter where they were actually produced (coverage ratio). In 1987, the coverage ratio was 85 percent.

The products primary to industry 3494, no matter in what industry they were produced, appear in table 6a and aggregate to \$2.0 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 valves and pipe fittings, not elsewhere classified, industry amounted to \$924.5 million. 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 10 percent of the total value of shipments.

INDUSTRY 3495, WIRE SPRINGS

This industry is made up of establishments primarily engaged in manufacturing wire springs from purchased wire. Establishments primarily engaged in assembling wire bedsprings or seats are classified in industry major group 25.

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 3495, Wire Springs, had employment of 18.0 thousand. The employment figure was 9 percent below the 19.7 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 Illinois, Ohio, and Michigan, accounting for approximately 29 percent of the industry's employment. This represents a shift from 1987 when Illinois, Michigan, Indiana, and Ohio accounted for approximately 36 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was \$1.7 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 3495 shipped \$1.4 billion of wire products considered primary to the industry, \$157.0 million of secondary products, and had \$149.5 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 90 percent (specialization ratio). In 1987, the specialization ratio was 91 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 93 percent.

The products primary to industry 3495, no matter in what industry they were produced, appear in table 6a and aggregate to \$1.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and energy used by establishments classified in the wire springs industry amounted to \$792.2 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 5 percent of the total value of shipments.

INDUSTRY 3496, MISCELLANEOUS FABRICATED WIRE PRODUCTS

This industry is made up of establishments primarily engaged in manufacturing miscellaneous fabricated wire products from purchased wire, such as noninsulated wire rope and cable; fencing; screening, netting, paper machine wire cloth; hangers, paperclips, kitchenware, and wire carts. Rolling mills engaged in manufacturing wire products are classified in major group 33. Establishments primarily engaged in manufacturing steel nails and spikes from purchased wire or rod are classified in industry 3315; those

manufacturing nonferrous wire nails and spikes from purchased wire rod are classified in industry 3399; those drawing and insulating nonferrous wire are classified in industry 3357; and those manufacturing wire springs are classified in industry 3495.

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 3496, Miscellaneous Fabricated Wire Products, had employment of 38.8 thousand. The employment figure was 11 percent above the 35.1 thousand reported in 1987. Compared with 1991, employment increased 21 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Illinois, Missouri, Pennsylvania, and California, accounting for approximately 30 percent of the industry's employment. This represents a shift from 1987 when California, Pennsylvania, Illinois, and Ohio accounted for approximately 30 percent of the industry's employment.

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

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3496 shipped \$3.2 billion of miscellaneous fabricated wire products considered primary to the industry, \$178.7 million of secondary products, and had \$160.6 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 95 percent (specialization ratio). In 1987, the specialization ratio also was 95 percent.

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

The products primary to industry 3496, 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 miscellaneous wire products industry amounted to \$1.7 billion. Data on specific materials consumed appear in table 7.

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

INDUSTRY 3497, METAL FOIL AND LEAF

This industry is made up of establishments primarily engaged in manufacturing gold, silver, tin, and other metal foil (including converted metal foil) and leaf. Also included in this industry are establishments primarily engaged in converting metal foil (including aluminum) into wrappers, cookware, dinnerware, and containers, except bags and liners. Establishments primarily engaged in manufacturing plain aluminum foil are classified in industry 3353.

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 3497, Metal Foil and Leaf, had employment of 12.0 thousand. The employment figure was 15 percent above the 10.4 thousand reported in 1987. Compared with 1991, employment increased 16 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 North Carolina, New Jersey, Illinois, and Ohio. These same States were the leaders in 1987.

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 3497 shipped \$2.5 billion of metal foil and leaf products considered primary to the industry, \$512.5 million of secondary products, and had \$116.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in this industry was 83 percent (specialization ratio). In 1987, the specialization ratio was 81 percent.

Establishments in this industry also accounted for 86 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 3497, no matter in what industry they were produced, appear in table 6a and aggregate to \$2.9 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 metal foil and leaf industry amounted to \$1.8 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 1 percent of the total value of shipments.

INDUSTRY 3498, FABRICATED PIPE AND FITTINGS

This industry is made up of establishments primarily engaged in fabricating pipe and pipe fittings from purchased pipe, by processes such as cutting, threading, and bending. Establishments primarily engaged in manufacturing cast iron pipe and pipe fittings, including cast and forged pipe fittings which have been machined and threaded are classified in industry 3321; those manufacturing welded and heavy riveted pipe and seamless steel pipe are classified in industry 3317; and those manufacturing products such as banisters, railings, and guards from pipe are classified in industry 3446.

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 3498, Fabricated Pipe and Fittings, had employment of 24.8 thousand. The employment figure was 24 percent above the 20.0 thousand reported in 1987. Compared with 1991, employment increased 21 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Texas, Michigan, California, and Louisiana, accounting for approximately 38 percent of the industry's employment. This represents a shift from 1987 when Michigan, Texas, California, and Pennsylvania accounted for approximately 46 percent of the industry's employment.

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

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3498 shipped \$2.5 billion of fabricated pipe and fittings products considered primary to the industry, \$108.8 million of secondary products, and had \$156.6 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 96 percent (specialization ratio). In 1987, the specialization ratio was 97 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 91 percent.

The products primary to industry 3498, 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 fabricated pipe and fittings industry amounted to \$1.5 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 13 percent of the total value of shipments.

INDUSTRY 3499, FABRICATED METAL PRODUCTS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing fabricated metal products, not elsewhere classified, such as fire or burglary resistive steel safes and vaults and similar fire or burglary resistive products; and collapsible tubes of thin flexible metal. Also included in this industry are establishments primarily engaged in manufacturing metal boxes, metal ladders, and metal household articles, such as ice cream freezers and ironing boards. Establishments primarily engaged in manufacturing concrete burial vaults are classified in industry 3272, and metal burial vaults are classified in industry 3995. Establishments primarily engaged in manufacturing advertising novelties are classified in industry 3993.

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 3499, Fabricated Metal Products, N.E.C., had employment of 69.8 thousand. The employment figure was 4 percent below the 72.5 thousand reported in 1987. Compared with 1991, employment decreased 8 percent. The 1991 data are based on the Census Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

The leading States in employment in 1992 were Pennsylvania, California, Illinois, and Michigan, accounting for

approximately 35 percent of the industry's employment. This represents a shift from 1987 when Pennsylvania, Illinois, Ohio, and California accounted for approximately 34 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was \$6.9 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry in which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3499 shipped \$6.0 billion of fabricated metal products considered primary to the industry, \$481.0 million of secondary products, and had \$459.8 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 also was 93 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 90 percent.

The products primary to industry 3499, no matter in what industry they were produced, appear in table 6a and aggregate to \$6.5 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 fabricated metal products, not elsewhere classified industry amounted to \$3.2 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 22 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	All establishments ³			All employees		Production workers			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	
	Companies ² (no.)	Total (no.)	With 20 employees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Specialization ⁷ (per cent)	Coverage ⁸ (per cent)
INDUSTRY 3491, INDUSTRIAL VALVES															
1992 Census ---	389	493	328	51.4	1 595.6	33.4	68.4	855.4	4 046.0	2 707.1	6 762.5	212.7	1 637.9	87	90
1991 ASM -----	(NA)	(NA)	(NA)	45.9	1 430.3	29.6	58.8	748.8	3 591.8	2 392.1	5 972.6	191.0	1 409.6	(NA)	(NA)
1990 ASM -----	(NA)	(NA)	(NA)	46.4	1 368.8	30.3	60.5	734.8	3 385.5	2 381.4	5 745.4	211.8	1 437.4	(NA)	(NA)
1989 ASM -----	(NA)	(NA)	(NA)	48.7	1 364.0	31.7	63.7	729.6	3 246.9	2 343.2	5 501.2	162.6	1 508.0	(NA)	(NA)
1988 ASM -----	(NA)	(NA)	(NA)	47.5	1 279.0	31.0	63.4	692.8	2 953.1	2 137.7	5 010.9	138.5	1 349.3	(NA)	(NA)
1987 Census ---	310	384	272	45.9	1 193.7	29.7	59.0	644.3	2 792.8	1 798.9	4 590.6	150.0	1 264.6	84	88
INDUSTRY 3492, FLUID POWER VALVES AND HOSE FITTINGS															
1992 Census ---	305	369	202	28.2	853.2	18.3	38.1	472.4	1 743.0	1 505.3	3 273.9	114.0	861.5	88	83
1991 ASM -----	(NA)	(NA)	(NA)	29.0	856.0	19.1	38.6	499.9	1 825.7	1 405.6	3 214.3	90.5	853.6	(NA)	(NA)
1990 ASM -----	(NA)	(NA)	(NA)	30.9	879.7	20.7	41.9	522.0	1 913.6	1 384.1	3 322.8	134.2	831.0	(NA)	(NA)
1989 ASM -----	(NA)	(NA)	(NA)	29.6	781.4	20.0	40.6	471.6	1 851.4	1 229.9	3 063.7	94.0	805.7	(NA)	(NA)
1988 ASM -----	(NA)	(NA)	(NA)	29.7	775.0	19.8	41.9	453.4	1 748.5	1 230.1	2 908.2	90.7	767.4	(NA)	(NA)
1987 Census ---	332	386	203	27.9	686.1	18.4	37.0	403.1	1 445.4	1 001.8	2 451.5	77.9	711.1	89	75
INDUSTRY 3493, STEEL SPRINGS, EXCEPT WIRE															
1992 Census ---	107	114	46	4.4	118.9	3.1	5.9	73.2	247.3	244.8	495.8	17.5	81.1	88	82
1991 ASM -----	(NA)	(NA)	(NA)	5.6	154.9	3.9	8.5	86.0	281.4	228.6	523.4	12.7	72.2	(NA)	(NA)
1990 ASM -----	(NA)	(NA)	(NA)	6.1	148.4	4.1	9.0	89.1	286.4	229.6	524.7	7.3	83.4	(NA)	(NA)
1989 ASM -----	(NA)	(NA)	(NA)	6.4	153.6	4.4	9.1	86.8	276.0	233.3	502.9	7.7	100.2	(NA)	(NA)
1988 ASM -----	(NA)	(NA)	(NA)	5.0	127.5	3.7	7.5	83.0	256.1	213.5	468.3	11.2	85.9	(NA)	(NA)
1987 Census ---	144	151	61	5.0	122.1	3.6	7.3	78.1	248.7	210.4	458.5	18.0	81.0	87	49
1986 ASM -----	(NA)	(NA)	(NA)	4.7	109.5	3.5	6.6	71.5	221.6	191.6	419.3	15.4	75.3	(NA)	(NA)
1985 ASM -----	(NA)	(NA)	(NA)	5.2	112.4	3.8	7.1	75.1	231.7	205.8	434.2	9.5	81.7	(NA)	(NA)
1984 ASM -----	(NA)	(NA)	(NA)	5.3	118.4	4.0	7.6	80.1	219.7	223.9	432.7	9.4	82.8	(NA)	(NA)
1983 ASM -----	(NA)	(NA)	(NA)	4.9	102.5	3.7	6.9	67.9	208.3	205.0	414.5	5.9	86.3	(NA)	(NA)
1982 Census ---	123	137	55	5.2	103.5	3.8	6.8	67.3	204.5	204.8	413.5	7.3	86.0	81	59
1981 ASM -----	(NA)	(NA)	(NA)	5.7	109.7	4.3	8.0	74.3	239.2	226.4	462.7	13.2	74.4	(NA)	(NA)
1980 ASM -----	(NA)	(NA)	(NA)	6.3	110.3	4.7	8.9	74.3	220.7	235.4	458.6	22.0	72.8	(NA)	(NA)
1979 ASM -----	(NA)	(NA)	(NA)	8.2	135.7	6.5	12.9	98.9	300.2	300.2	593.7	10.7	88.1	(NA)	(NA)
1978 ASM -----	(NA)	(NA)	(NA)	8.7	130.1	6.9	13.7	93.9	278.5	289.2	568.5	17.6	91.1	(NA)	(NA)
1977 Census ---	116	131	59	8.2	119.8	6.6	13.3	88.0	249.9	259.3	500.5	14.1	81.6	84	72
INDUSTRY 3494, VALVES AND PIPE FITTINGS, N.E.C.															
1992 Census ---	228	251	150	16.6	469.5	12.2	25.5	305.7	1 054.2	924.5	1 991.7	45.3	415.7	86	83
1991 ASM -----	(NA)	(NA)	(NA)	25.0	640.5	18.1	36.7	404.4	1 519.3	1 292.6	2 803.0	55.5	657.6	(NA)	(NA)
1990 ASM -----	(NA)	(NA)	(NA)	26.0	666.3	18.7	38.6	420.8	1 535.8	1 390.1	2 924.0	81.4	628.5	(NA)	(NA)
1989 ASM -----	(NA)	(NA)	(NA)	24.6	611.4	17.5	35.2	370.7	1 392.9	1 163.3	2 571.4	63.7	594.4	(NA)	(NA)
1988 ASM -----	(NA)	(NA)	(NA)	26.9	633.6	19.7	39.6	408.4	1 506.6	1 179.8	2 649.5	45.3	622.5	(NA)	(NA)
1987 Census ---	372	416	231	25.1	570.4	17.6	34.9	352.7	1 366.5	1 002.0	2 377.3	62.4	557.3	88	85
INDUSTRY 3495, WIRE SPRINGS															
1992 Census ---	313	399	208	18.0	443.4	13.9	27.6	309.0	953.1	792.2	1 743.5	61.5	151.6	90	94
1991 ASM -----	(NA)	(NA)	(NA)	20.0	429.2	16.3	30.8	322.6	1 006.9	835.3	1 827.0	53.7	171.0	(NA)	(NA)
1990 ASM -----	(NA)	(NA)	(NA)	20.1	437.2	16.4	32.9	331.4	974.7	885.8	1 843.9	54.9	172.4	(NA)	(NA)
1989 ASM -----	(NA)	(NA)	(NA)	20.4	419.5	16.6	34.1	318.5	926.9	820.6	1 739.0	48.4	164.4	(NA)	(NA)
1988 ASM -----	(NA)	(NA)	(NA)	20.1	425.2	16.3	31.8	312.0	908.7	797.7	1 702.6	49.8	169.3	(NA)	(NA)
1987 Census ---	304	407	214	19.7	406.5	16.0	32.2	289.9	880.0	697.5	1 580.4	49.2	156.4	91	93
1986 ASM -----	(NA)	(NA)	(NA)	21.0	438.5	17.6	35.4	322.0	882.3	696.9	1 574.0	60.7	162.7	(NA)	(NA)
1985 ASM -----	(NA)	(NA)	(NA)	21.9	438.1	18.5	36.9	316.6	869.1	708.3	1 575.7	62.2	159.6	(NA)	(NA)
1984 ASM -----	(NA)	(NA)	(NA)	20.2	388.6	16.6	32.4	263.4	804.1	649.2	1 441.2	71.2	154.8	(NA)	(NA)
1983 ASM -----	(NA)	(NA)	(NA)	19.7	339.8	16.3	31.0	245.5	690.8	585.2	1 270.2	42.9	138.0	(NA)	(NA)
1982 Census ---	322	432	236	17.9	294.1	14.5	27.5	208.8	596.8	498.7	1 104.3	31.9	116.4	92	93
1981 ASM -----	(NA)	(NA)	(NA)	16.3	269.3	13.4	26.9	197.8	527.9	458.4	983.2	29.1	110.8	(NA)	(NA)
1980 ASM -----	(NA)	(NA)	(NA)	18.6	261.3	15.3	30.5	191.8	513.2	462.7	981.8	29.4	109.0	(NA)	(NA)
1979 ASM -----	(NA)	(NA)	(NA)	21.4	274.8	17.8	36.4	201.9	536.0	531.8	1 063.1	36.2	113.1	(NA)	(NA)
1978 ASM -----	(NA)	(NA)	(NA)	22.7	283.0	18.8	36.9	206.6	570.3	487.6	1 051.4	34.3	114.7	(NA)	(NA)
1977 Census ---	254	332	226	21.7	253.5	18.0	35.4	187.8	497.7	458.6	957.7	27.6	104.5	92	92
INDUSTRY 3496, MISCELLANEOUS FABRICATED WIRE PRODUCTS															
1992 Census ---	1 091	1 165	448	38.8	878.8	29.0	59.6	538.8	1 857.5	1 701.1	3 553.0	102.9	545.7	95	93
1991 ASM -----	(NA)	(NA)	(NA)	32.0	675.5	24.1	48.9	426.1	1 653.8	1 442.5	3 089.2	71.5	471.6	(NA)	(NA)
1990 ASM -----	(NA)	(NA)	(NA)	33.2	681.0	24.9	50.0	422.0	1 552.1	1 447.3	2 999.7	89.7	459.1	(NA)	(NA)
1989 ASM -----	(NA)	(NA)	(NA)	34.3	673.4	26.1	51.0	419.0	1 458.4	1 384.6	2 828.6	69.4	439.4	(NA)	(NA)
1988 ASM -----	(NA)	(NA)	(NA)	36.9	723.2	28.0	55.2	449.2	1 555.1	1 422.4	2 962.9	56.5	442.7	(NA)	(NA)
1987 Census ---	1 066	1 157	447	35.1	674.2	26.2	52.5	418.2	1 463.8	1 251.9	2 720.8	64.9	404.0	95	90
1986 ASM -----	(NA)	(NA)	(NA)	37.2	678.6	28.3	55.7	429.3	1 447.1	1 337.1	2 775.5	68.7	449.2	(NA)	(NA)
1985 ASM -----	(NA)	(NA)	(NA)	37.4	671.2	28.3	54.7	429.7	1 406.4	1 338.8	2 744.4	106.1	453.7	(NA)	(NA)
1984 ASM -----	(NA)	(NA)	(NA)	39.7	682.9	30.4	60.0	437.0	1 503.5	1 364.6	2 837.5	72.3	476.4	(NA)	(NA)
1983 ASM -----	(NA)	(NA)	(NA)	37.9	630.3	28.6	56.1	406.4	1 344.6	1 247.4	2 597.0	58.4	466.3	(NA)	(NA)
1982 Census ---	1 109	1 182	445	36.8	580.3	27.8	53.2	375.1	1 167.3	1 172.0	2 358.4	67.0	443.0	93	(NA)
1981 ASM -----	(NA)	(NA)	(NA)	27.4	461.8	21.1	41.7	302.2	927.2	1 023.9	1 938.6	67.4	324.0	(NA)	(NA)
1980 ASM -----	(NA)	(NA)	(NA)	27.3	420.2	21.4	41.7	270.4	840.4	953.9	1 800.0	50.7	289.6	(NA)	(NA)
1979 ASM -----	(NA)	(NA)	(NA)	29.9	413.9	23.9	47.1	271.7	918.8	967.1	1 860.8	50.6	302.2	(NA)	(NA)
1978 ASM -----	(NA)	(NA)	(NA)	32.8	376.6	25.8	51.1	251.1	753.4	793.5	1 539.2	61.9	265.7	(NA)	(NA)
1977 Census ---	1 048	1 114	387	32.4	354.5	25.5	49.4	232.2	721.7	728.3	1 435.0	47.3	252.8	91	(NA)
INDUSTRY 3497, METAL FOIL AND LEAF															
1992 Census ---	104	121	73	12.0	405.9	8.7	18.5	263.6	1 274.8	1 839.9	3 118.5	90.6	435.2	83	86
1991 ASM -----	(NA)	(NA)	(NA)	10.3	353.9	7.7	17.5	241.4	962.6	1 780.6	2 741.5	99.6	406.1	(NA)	(NA)
1990 ASM -----	(NA)	(NA)	(NA)	10.6	354.0	7.9	18.3	244.3	938.4	1 916.6	2 845.8	95.5	424.9	(NA)	(NA)
1989 ASM -----	(NA)	(NA)	(NA)	10.7	339.8	8.0	17.9	232.8	954.2	1 875.0	2 844.5	81.9	422.7	(NA)	(NA)
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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	All establishments ³			All employees		Production workers			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	
	Companies ² (no.)	Total (no.)	With 20 employees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Specialization ⁷ (per cent)	Coverage ⁸ (per cent)
INDUSTRY 3497, METAL FOIL AND LEAF—Con.															
1986 ASM-----	(NA)	(NA)	(NA)	10.1	270.8	7.4	15.5	180.3	764.8	1 279.4	2 046.9	50.9	318.7	(NA)	(NA)
1985 ASM-----	(NA)	(NA)	(NA)	11.3	286.5	8.3	17.0	190.4	819.3	1 381.0	2 198.5	65.4	344.2	(NA)	(NA)
1984 ASM-----	(NA)	(NA)	(NA)	11.4	287.3	8.5	17.4	194.2	762.8	1 445.2	2 191.1	58.4	367.9	(NA)	(NA)
1983 ASM-----	(NA)	(NA)	(NA)	10.5	249.7	7.7	15.5	173.8	702.3	1 228.8	1 907.5	41.9	313.4	(NA)	(NA)
1982 Census ---	80	97	68	10.8	243.1	8.0	16.0	172.4	662.8	1 169.7	1 846.3	40.1	287.2	81	82
1981 ASM-----	(NA)	(NA)	(NA)	8.4	171.6	6.1	12.5	118.1	425.7	837.7	1 263.6	37.5	172.7	(NA)	(NA)
1980 ASM-----	(NA)	(NA)	(NA)	9.0	172.8	6.6	13.0	117.0	400.7	754.3	1 146.4	35.2	175.0	(NA)	(NA)
1979 ASM-----	(NA)	(NA)	(NA)	8.9	154.3	6.6	13.2	106.8	362.4	690.3	1 037.2	24.0	159.4	(NA)	(NA)
1978 ASM-----	(NA)	(NA)	(NA)	9.5	148.0	7.0	13.9	103.2	342.1	710.8	1 047.8	38.9	159.4	(NA)	(NA)
1977 Census ---	63	77	52	9.4	125.8	6.6	13.0	87.1	298.0	607.2	895.1	16.1	141.1	80	63
INDUSTRY 3498, FABRICATED PIPE AND FITTINGS															
1992 Census ---	810	856	315	24.8	647.7	17.8	37.9	404.7	1 303.6	1 487.7	2 794.3	59.3	463.7	96	92
1991 ASM-----	(NA)	(NA)	(NA)	20.5	487.6	15.0	30.4	306.1	980.0	1 298.2	2 270.5	34.0	425.6	(NA)	(NA)
1990 ASM-----	(NA)	(NA)	(NA)	21.9	529.5	16.1	33.3	345.0	1 027.0	1 291.5	2 333.8	35.2	434.2	(NA)	(NA)
1989 ASM-----	(NA)	(NA)	(NA)	21.1	482.5	15.6	31.8	310.1	1 012.8	1 167.9	2 151.7	41.1	437.1	(NA)	(NA)
1988 ASM-----	(NA)	(NA)	(NA)	21.4	471.6	16.2	34.3	309.0	1 111.8	1 058.2	2 142.0	33.9	382.2	(NA)	(NA)
1987 Census ---	679	728	283	20.0	422.9	15.0	30.1	278.9	824.8	906.6	1 725.5	36.4	349.0	97	91
1986 ASM-----	(NA)	(NA)	(NA)	20.9	473.8	15.1	28.8	303.9	926.4	1 122.1	2 071.1	47.0	375.2	(NA)	(NA)
1985 ASM-----	(NA)	(NA)	(NA)	25.1	547.3	18.5	34.6	360.6	1 038.8	1 375.2	2 476.5	78.9	466.3	(NA)	(NA)
1984 ASM-----	(NA)	(NA)	(NA)	25.2	563.9	18.9	36.7	380.1	1 079.8	1 552.9	2 679.8	52.7	624.0	(NA)	(NA)
1983 ASM-----	(NA)	(NA)	(NA)	29.3	596.1	21.7	42.2	399.1	1 207.2	1 460.2	2 776.1	47.8	751.0	(NA)	(NA)
1982 Census ---	704	779	348	32.7	650.7	23.8	46.3	423.5	1 437.5	1 666.7	3 105.8	137.2	897.0	97	94
1981 ASM-----	(NA)	(NA)	(NA)	32.0	589.7	24.5	47.0	405.8	1 442.1	1 567.8	2 934.0	135.3	677.4	(NA)	(NA)
1980 ASM-----	(NA)	(NA)	(NA)	32.0	531.9	24.4	46.6	364.2	1 164.4	1 330.4	2 487.0	80.6	520.1	(NA)	(NA)
1979 ASM-----	(NA)	(NA)	(NA)	32.9	488.9	25.9	50.2	345.6	1 145.3	1 256.7	2 408.3	67.0	471.0	(NA)	(NA)
1978 ASM-----	(NA)	(NA)	(NA)	30.2	433.8	23.2	44.0	295.9	1 006.0	1 217.3	2 183.4	58.1	480.0	(NA)	(NA)
1977 Census ---	513	579	278	28.2	390.0	21.4	40.6	265.4	887.2	1 015.4	1 872.7	51.0	418.4	94	93
INDUSTRY 3499, FABRICATED METAL PRODUCTS, N.E.C.															
1992 Census ---	3 369	3 444	775	69.8	1 781.0	49.9	100.8	1 063.9	3 714.9	3 240.1	6 944.6	208.0	984.4	93	92
1991 ASM-----	(NA)	(NA)	(NA)	75.6	1 785.6	53.7	111.0	1 081.1	3 540.0	2 976.3	6 517.7	148.3	909.1	(NA)	(NA)
1990 ASM-----	(NA)	(NA)	(NA)	80.0	1 792.4	57.7	118.4	1 099.7	3 762.3	3 119.6	6 904.6	206.9	948.1	(NA)	(NA)
1989 ASM-----	(NA)	(NA)	(NA)	77.7	1 718.9	56.2	115.2	1 071.3	3 768.9	3 173.8	6 947.0	148.3	981.4	(NA)	(NA)
1988 ASM-----	(NA)	(NA)	(NA)	75.6	1 631.8	55.0	110.7	1 006.5	3 572.4	3 125.5	6 678.3	115.1	947.4	(NA)	(NA)
1987 Census ---	3 720	3 782	849	72.5	1 525.9	52.7	105.6	942.3	3 380.9	2 778.0	6 148.6	152.5	873.1	93	90
1986 ASM-----	(NA)	(NA)	(NA)	71.4	1 374.9	53.6	99.0	899.9	3 063.4	2 589.4	5 627.8	138.7	816.9	(NA)	(NA)
1985 ASM-----	(NA)	(NA)	(NA)	70.0	1 277.8	53.5	107.0	835.6	2 809.1	2 395.4	5 216.2	172.4	762.8	(NA)	(NA)
1984 ASM-----	(NA)	(NA)	(NA)	72.5	1 213.4	55.8	112.2	790.6	2 718.3	2 441.8	5 117.5	167.3	779.6	(NA)	(NA)
1983 ASM-----	(NA)	(NA)	(NA)	61.1	1 061.5	46.5	89.5	700.9	2 382.9	2 025.5	4 399.8	97.3	714.4	(NA)	(NA)
1982 Census ---	2 910	2 982	810	65.0	1 105.8	48.8	94.2	715.2	2 304.5	2 039.8	4 406.0	114.1	709.1	92	87
1981 ASM-----	(NA)	(NA)	(NA)	75.2	1 223.8	56.9	114.7	803.8	2 674.1	2 569.9	5 249.4	145.1	776.4	(NA)	(NA)
1980 ASM-----	(NA)	(NA)	(NA)	77.0	1 139.7	58.2	116.3	749.5	2 578.8	2 454.3	5 043.3	174.4	768.4	(NA)	(NA)
1979 ASM-----	(NA)	(NA)	(NA)	80.5	1 095.0	61.8	121.1	713.8	2 415.8	2 380.1	4 724.7	156.9	778.4	(NA)	(NA)
1978 ASM-----	(NA)	(NA)	(NA)	71.8	932.7	54.1	107.4	594.5	2 084.5	1 953.0	3 974.5	107.7	660.8	(NA)	(NA)
1977 Census ---	3 142	3 238	794	70.8	844.7	54.1	104.8	547.8	1 814.5	1 643.5	3 429.2	94.8	574.3	89	83

¹In 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.

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

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

⁴Beginning 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.

⁵Cost 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.

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

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

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

⁹The 1987 coverage ratio for an industry with products primary to more than one industry was recalculated and confined exclusively to that industry.

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 3491, INDUSTRIAL VALVES									
1992 Census-----	31 043	65	2 048	12.51	40	64	78 716	39	59.15
1991 ASM-----	31 161	64	1 986	12.73	40	64	78 253	40	61.09
1990 ASM-----	29 500	65	1 997	12.15	41	65	72 963	40	55.96
1989 ASM-----	28 008	65	2 009	11.45	43	67	66 671	42	50.97
1988 ASM-----	26 926	65	2 045	10.93	43	68	62 171	43	46.58
1987 Census-----	26 007	65	1 987	10.92	39	65	60 845	43	47.34

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 3492, FLUID POWER VALVES AND HOSE FITTINGS									
1992 Census	30 255	65	2 082	12.40	46	72	61 809	49	45.75
1991 ASM	29 517	66	2 021	12.95	44	70	62 955	47	47.30
1990 ASM	28 469	67	2 024	12.46	42	68	61 929	46	45.67
1989 ASM	26 399	68	2 030	11.62	40	66	62 547	42	45.60
1988 ASM	26 094	67	2 116	10.82	42	69	58 872	44	41.73
1987 Census	24 591	66	2 011	10.89	41	69	51 806	47	39.06
INDUSTRY 3493, STEEL SPRINGS, EXCEPT WIRE									
1992 Census	27 023	70	1 903	12.41	49	73	56 205	48	41.92
1991 ASM	27 661	70	2 179	10.12	44	73	50 250	55	33.11
1990 ASM	24 328	67	2 195	9.90	44	72	46 951	52	31.82
1989 ASM	24 000	69	2 068	9.54	46	77	43 125	56	30.33
1988 ASM	25 500	74	2 027	11.07	46	73	51 220	50	34.15
1987 Census	24 420	72	2 028	10.70	46	73	49 740	49	34.07
1986 ASM	23 298	74	1 886	10.83	46	72	47 149	49	33.58
1985 ASM	21 615	73	1 868	10.58	47	73	44 558	49	32.63
1984 ASM	22 340	75	1 900	10.54	52	79	41 453	54	28.91
1983 ASM	20 918	76	1 865	9.84	49	74	42 510	49	30.19
1982 Census	19 904	73	1 789	9.90	50	75	39 327	51	30.07
1981 ASM	19 246	75	1 860	9.29	49	73	41 965	46	29.90
1980 ASM	17 508	75	1 894	8.35	51	75	35 032	50	24.80
1979 ASM	16 549	79	1 985	7.67	51	73	36 610	45	23.27
1978 ASM	14 954	79	1 986	6.85	51	74	32 011	47	20.33
1977 Census	14 610	80	2 015	6.62	52	76	30 476	48	18.79
INDUSTRY 3494, VALVES AND PIPE FITTINGS, N.E.C.									
1992 Census	28 283	73	2 090	11.99	46	70	63 506	45	41.34
1991 ASM	25 620	72	2 028	11.02	46	69	60 772	42	41.40
1990 ASM	25 627	72	2 064	10.90	48	70	59 069	43	39.79
1989 ASM	24 854	71	2 011	10.53	45	69	56 622	44	39.57
1988 ASM	23 554	73	2 010	10.31	45	68	56 007	42	38.05
1987 Census	22 725	70	1 983	10.11	42	66	54 442	42	39.15
INDUSTRY 3495, WIRE SPRINGS									
1992 Census	24 633	77	1 986	11.20	45	71	52 950	47	34.53
1991 ASM	21 460	81	1 890	10.47	46	69	50 345	43	32.69
1990 ASM	21 751	82	2 006	10.07	48	72	48 493	45	29.63
1989 ASM	20 564	81	2 054	9.34	47	71	45 436	45	27.18
1988 ASM	21 154	81	1 951	9.81	47	72	45 209	47	28.58
1987 Census	20 635	81	2 013	9.00	44	70	44 670	46	27.33
1986 ASM	20 881	84	2 011	9.10	44	72	42 014	50	24.92
1985 ASM	20 005	84	1 995	8.58	45	73	39 685	50	23.55
1984 ASM	19 238	82	1 952	8.13	45	72	39 807	48	24.82
1983 ASM	17 249	83	1 902	7.92	46	73	35 066	49	22.28
1982 Census	16 430	81	1 897	7.59	45	72	33 341	49	21.70
1981 ASM	16 521	82	2 007	7.35	47	74	32 387	51	19.62
1980 ASM	14 048	82	1 993	6.29	47	74	27 591	51	16.83
1979 ASM	12 841	83	2 045	5.55	50	76	25 047	51	14.73
1978 ASM	12 467	83	1 963	5.60	46	73	25 123	50	15.46
1977 Census	11 682	83	1 967	5.31	48	74	22 935	51	14.06
INDUSTRY 3496, MISCELLANEOUS FABRICATED WIRE PRODUCTS									
1992 Census	22 649	75	2 055	9.04	48	73	47 874	47	31.17
1991 ASM	21 109	75	2 029	8.71	47	69	51 681	41	33.82
1990 ASM	20 512	75	2 008	8.44	48	71	46 750	44	31.04
1989 ASM	19 633	76	1 954	8.22	49	73	42 519	46	28.60
1988 ASM	19 599	76	1 971	8.14	48	72	42 144	47	28.17
1987 Census	19 208	75	2 004	7.97	46	71	41 704	46	27.88
1986 ASM	18 242	76	1 968	7.71	48	73	38 901	47	25.98
1985 ASM	17 947	76	1 933	7.86	49	73	37 604	48	25.71
1984 ASM	17 202	77	1 974	7.28	48	72	37 872	45	25.06
1983 ASM	16 631	75	1 962	7.24	48	72	35 478	47	23.97
1982 Census	15 769	76	1 914	7.05	50	74	31 720	50	21.94
1981 ASM	16 854	77	1 976	7.25	53	77	33 839	50	22.24
1980 ASM	15 392	78	1 949	6.48	53	76	30 784	50	20.15
1979 ASM	13 843	80	1 971	5.77	52	74	30 729	45	19.51
1978 ASM	11 482	79	1 981	4.91	52	76	22 970	50	14.74
1977 Census	10 941	79	1 937	4.70	51	75	22 275	49	14.61
INDUSTRY 3497, METAL FOIL AND LEAF									
1992 Census	33 825	73	2 126	14.25	59	72	106 233	32	68.91
1991 ASM	34 359	75	2 273	13.79	65	78	93 456	37	55.01
1990 ASM	33 396	75	2 316	13.35	67	80	88 528	38	51.28
1989 ASM	31 757	75	2 238	13.01	66	78	89 178	36	53.31
1988 ASM	29 955	74	2 122	13.05	67	79	87 559	34	55.86
1987 Census	29 260	71	2 149	12.70	63	76	82 192	36	53.76
1986 ASM	26 812	73	2 095	11.63	63	76	75 723	35	49.34
1985 ASM	25 354	73	2 048	11.20	63	76	72 504	35	48.19
1984 ASM	25 202	75	2 047	11.16	66	79	66 912	38	43.84
1983 ASM	23 781	73	2 013	11.21	64	78	66 886	36	45.31
1982 Census	22 509	74	2 000	10.78	63	77	61 370	37	41.43
1981 ASM	20 429	73	2 049	9.45	66	80	50 679	40	34.06
1980 ASM	19 200	73	1 970	9.00	66	81	44 522	43	30.82
1979 ASM	17 337	74	2 000	8.09	67	81	40 719	43	27.45
1978 ASM	15 579	74	1 986	7.42	68	82	36 011	43	24.61
1977 Census	13 383	70	1 970	6.70	68	82	31 702	42	22.92

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 3498, FABRICATED PIPE AND FITTINGS									
1992 Census	26 117	72	2 129	10.68	53	76	52 565	50	34.40
1991 ASM	23 785	73	2 027	10.07	57	79	47 805	50	32.24
1990 ASM	24 178	74	2 068	10.36	55	78	46 895	52	30.84
1989 ASM	22 867	74	2 038	9.75	54	77	48 000	48	31.85
1988 ASM	22 037	76	2 117	9.01	49	71	51 953	42	32.41
1987 Census	21 145	75	2 007	9.27	53	77	41 240	51	27.40
1986 ASM	22 670	72	1 907	10.55	54	77	44 325	51	32.17
1985 ASM	21 805	74	1 870	10.42	56	78	41 386	53	30.02
1984 ASM	22 377	75	1 942	10.36	58	79	42 849	52	29.42
1983 ASM	20 345	74	1 945	9.46	53	74	41 201	49	28.61
1982 Census	19 899	73	1 945	9.15	54	75	43 960	45	31.05
1981 ASM	18 428	77	1 918	8.63	53	74	45 066	41	30.68
1980 ASM	16 622	76	1 910	7.82	53	75	36 388	46	24.99
1979 ASM	14 860	79	1 938	6.88	52	72	34 812	43	22.81
1978 ASM	14 364	77	1 897	6.73	56	76	33 311	43	22.86
1977 Census	13 830	76	1 897	6.54	54	75	31 461	44	21.85
INDUSTRY 3499, FABRICATED METAL PRODUCTS, N.E.C.									
1992 Census	25 516	71	2 020	10.55	47	72	53 222	48	36.85
1991 ASM	23 619	71	2 067	9.74	46	73	46 825	50	31.89
1990 ASM	22 405	72	2 052	9.29	45	71	47 029	48	31.78
1989 ASM	22 122	72	2 050	9.30	46	70	48 506	46	32.72
1988 ASM	21 585	73	2 013	9.09	47	71	47 254	46	32.27
1987 Census	21 047	73	2 004	8.92	45	70	46 633	45	32.02
1986 ASM	19 256	75	1 847	9.09	46	70	42 905	45	30.94
1985 ASM	18 254	76	2 000	7.81	46	70	40 130	45	26.25
1984 ASM	16 737	77	2 011	7.05	48	71	37 494	45	24.23
1983 ASM	17 373	76	1 925	7.83	46	70	39 000	45	26.62
1982 Census	17 012	75	1 930	7.59	46	71	35 454	48	24.46
1981 ASM	16 274	76	2 016	7.01	49	72	35 560	46	23.31
1980 ASM	14 801	76	1 998	6.44	49	71	33 491	44	22.17
1979 ASM	13 602	77	1 960	5.89	50	74	30 010	45	19.95
1978 ASM	12 990	75	1 985	5.54	49	73	29 032	45	19.41
1977 Census	11 931	76	1 937	5.23	48	73	25 629	47	17.31

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			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 3491, INDUSTRIAL VALVES													
United States	493	328	51.4	1 595.6	33.4	68.4	855.4	4 046.0	2 707.1	6 762.5	212.7	45.9	2 792.8
Alabama	7	5	2.2	53.6	1.7	3.1	35.7	126.1	78.1	204.9	9.4	G	(D)
Arizona	5	4	.2	5.3	.2	.3	3.0	11.5	5.9	17.6	(D)	(NA)	(NA)
Arkansas	6	6	2.2	48.1	1.9	3.7	35.4	133.0	100.0	230.2	6.1	2.1	93.9
California	54	36	4.0	142.4	2.4	4.8	61.3	346.6	239.6	579.7	11.0	3.8	254.9
Connecticut	E1 8	7	.8	26.5	.5	1.0	11.8	55.5	41.9	102.5	4.2	1.1	55.9
Florida	10	6	.7	19.6	.4	.9	9.4	44.8	26.5	72.5	2.2	F	(D)
Georgia	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	E1 25	18	2.2	73.4	1.6	3.4	46.0	174.8	139.7	314.6	10.9	3.0	195.3
Indiana	9	7	1.2	35.9	.8	1.7	20.2	84.7	48.9	133.8	3.0	1.4	68.8
Iowa	10	7	3.1	105.8	1.8	3.4	53.8	268.7	101.4	370.8	(D)	2.9	138.7
Kansas	5	2	.2	5.8	.1	.2	1.9	6.1	10.2	16.6	(D)	.2	8.6
Kentucky	3	3	.3	7.0	.2	.4	4.3	16.0	11.9	28.5	(D)	E	(D)
Louisiana	10	7	1.0	39.3	.6	1.7	20.3	68.0	57.9	128.1	(D)	F	(D)
Massachusetts	18	15	2.7	94.9	1.6	3.1	44.7	211.6	129.2	336.8	11.1	2.1	116.9
Michigan	13	7	.8	24.1	.6	1.0	14.8	57.1	26.9	86.0	2.6	.5	25.0
Minnesota	6	4	1.2	39.1	.7	1.2	19.3	81.1	57.2	136.3	5.7	1.1	70.4
Mississippi	4	3	.4	9.4	.2	.5	5.1	17.3	20.9	39.1	(D)	(NA)	(NA)
Missouri	12	8	1.5	44.1	1.1	2.1	24.7	131.7	82.1	210.8	6.1	1.6	112.3
Nevada	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Hampshire	8	6	.8	24.0	.7	1.3	16.3	84.9	58.1	142.7	(D)	F	(D)
New Jersey	22	15	2.4	89.0	1.1	2.3	33.8	216.6	117.2	335.3	8.8	1.8	139.4
New York	17	9	1.3	41.8	.8	1.7	21.7	125.0	51.8	172.4	5.1	1.8	113.7
North Carolina	14	13	1.4	33.6	.9	1.8	17.3	154.7	104.2	255.4	5.4	1.6	159.4
Ohio	31	22	3.0	90.0	2.0	4.1	52.2	223.2	253.3	492.9	11.9	1.9	127.9
Oklahoma	25	13	1.4	44.7	.9	1.7	20.9	100.9	86.0	197.1	8.0	1.0	53.1

See footnotes at end of table.

34F-12 MISC. FABRICATED METAL PRODUCTS

MANUFACTURES—INDUSTRY SERIES

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		
	E1	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 3491, INDUSTRIAL VALVES—Con.														
Pennsylvania	—	45	27	3.1	109.5	1.6	3.2	46.0	258.5	123.0	365.0	10.2	3.1	180.0
South Carolina	E2	7	7	1.5	33.0	1.2	2.7	24.3	141.6	36.9	177.5	(D)	1.4	87.8
Tennessee	—	7	4	1.4	41.3	1.0	2.0	26.7	114.4	90.5	203.1	6.6	1.3	103.2
Texas	—	73	46	6.3	196.2	4.2	8.7	110.2	512.3	378.3	898.7	35.7	4.8	295.3
Utah	—	3	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Vermont	—	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Virginia	—	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Washington	—	5	1	.2	5.6	.1	.2	3.2	13.0	6.7	20.2	.2	(NA)	(NA)
West Virginia	—	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	E2	9	7	1.9	56.1	1.4	3.1	35.9	124.8	96.1	224.5	7.3	1.0	67.9
INDUSTRY 3492, FLUID POWER VALVES AND HOSE FITTINGS														
United States	—	369	202	28.2	853.2	18.3	38.1	472.4	1 743.0	1 505.3	3 273.9	114.0	27.9	1 445.4
Alabama	—	2	2	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Arizona	—	8	5	.7	18.9	.4	.8	9.8	28.7	25.2	55.5	1.7	.2	6.9
Arkansas	—	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
California	E1	65	28	3.7	126.1	1.9	3.7	54.5	237.7	139.2	380.0	11.8	2.2	115.4
Colorado	—	5	3	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.2	51.0
Connecticut	—	9	4	.6	25.5	.4	.8	12.0	46.8	29.3	77.4	3.8	.6	39.0
Florida	—	6	5	1.0	28.2	.6	1.3	14.6	69.2	26.5	100.2	1.1	1.0	55.8
Georgia	—	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	—	19	13	1.5	44.3	.9	2.0	23.5	79.1	79.3	158.7	3.3	1.7	83.7
Indiana	—	14	8	.8	23.6	.5	1.0	13.1	47.1	73.1	124.1	.9	.6	37.4
Iowa	—	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kansas	—	6	3	.2	2.8	.1	.2	1.8	8.9	8.4	17.3	(D)	(NA)	(NA)
Kentucky	—	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Maine	—	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Maryland	—	1	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Massachusetts	—	6	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Michigan	—	47	33	3.7	113.7	2.7	5.3	68.3	205.3	207.2	415.5	12.3	4.3	201.2
Minnesota	—	14	7	.8	23.6	.4	.9	10.6	35.5	35.1	72.4	3.1	.7	13.9
Missouri	—	6	3	.4	7.4	.3	.6	5.2	20.2	37.4	57.5	(D)	.4	25.5
Nebraska	—	4	3	.3	7.8	.2	.4	4.6	16.7	10.3	25.2	(D)	(NA)	(D)
New Hampshire	—	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	—	9	4	.6	22.5	.3	.6	8.3	56.3	22.3	78.1	(D)	1.0	53.4
New York	—	12	5	.8	29.5	.4	.9	14.2	41.3	27.5	78.6	2.5	1.1	59.4
North Carolina	—	12	5	.6	16.7	.5	.9	10.7	46.7	38.3	85.3	2.0	.5	29.0
Ohio	—	42	25	4.6	143.0	3.2	6.6	89.2	300.6	404.8	704.3	36.8	6.1	336.8
Oklahoma	—	6	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Oregon	—	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	10.6
Pennsylvania	—	14	9	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
South Carolina	—	4	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
South Dakota	—	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	E1	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	E1	23	7	.6	17.7	.4	1.0	9.8	25.0	31.4	56.5	(D)	1.1	34.5
Wisconsin	—	12	7	1.3	38.3	1.0	1.9	25.7	97.8	59.7	155.8	7.2	1.0	33.0
INDUSTRY 3493, STEEL SPRINGS, EXCEPT WIRE														
United States	—	114	46	4.4	118.9	3.1	5.9	73.2	247.3	244.8	495.8	17.5	5.0	248.7
California	—	15	5	.4	11.6	.2	.4	5.5	24.1	15.0	40.1	.4	E	(D)
Connecticut	—	8	5	.5	15.5	.3	.7	9.9	32.4	15.3	48.9	.5	.6	32.7
Georgia	—	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	E1	10	4	.4	9.2	.3	.5	5.9	20.6	18.7	39.1	(D)	.6	24.3
Indiana	—	8	5	F	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.2	.8	34.0
Kentucky	—	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Michigan	—	6	2	.1	3.3	.1	.1	1.7	6.0	4.9	10.9	.6	.3	11.4
Ohio	E1	9	5	.4	9.7	.3	.6	5.9	20.6	21.6	42.6	(D)	.5	24.1
Pennsylvania	—	13	10	.9	27.1	.6	1.1	14.7	56.1	82.2	138.3	4.5	1.0	66.7
Texas	—	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)

See footnotes at end of table.

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		
	E1	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 3494, VALVES AND PIPE FITTINGS, N.E.C.														
United States	E1	251	150	16.6	469.5	12.2	25.5	305.7	1 054.2	924.5	1 991.7	45.3	25.1	1 366.5
Alabama	—	3	2	E (D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Arkansas	—	3	3	E (D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	17.2
California	E2	26	11	.6	21.7	.4	.9	11.3	44.9	32.2	77.7	1.6	2.3	142.2
Colorado	—	1	1	C (D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Connecticut	E2	5	4	.2	8.7	.2	.4	5.4	20.0	16.5	36.6	.7	.5	26.8
Florida	E4	7	5	.2	4.8	.1	.3	2.7	11.0	10.7	21.7	1.2	.3	14.3
Illinois	E1	18	11	1.3	38.3	.9	2.0	23.1	85.8	84.8	170.2	2.2	1.3	77.4
Indiana	—	8	6	1.1	34.6	.8	1.7	23.7	67.4	64.5	136.3	3.1	1.7	84.2
Iowa	—	3	2	C (D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Louisiana	—	5	3	F (D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	19.5
Maryland	—	1	1	E (D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Michigan	E2	13	7	.5	15.8	.3	.7	9.1	51.7	29.0	82.7	3.2	.9	59.1
Mississippi	—	1	1	C (D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	—	2	2	E (D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New Jersey	E2	9	5	.4	10.4	.2	.6	5.4	16.6	18.0	34.5	.5	.4	17.3
New York	—	8	4	.4	11.0	.3	.6	8.8	19.2	21.4	40.8	.9	E	(D)
North Carolina	E3	2	2	E (D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Ohio	E1	29	19	1.6	43.3	1.2	2.4	30.9	111.3	101.7	214.0	4.4	2.7	146.6
Pennsylvania	—	21	17	3.7	98.6	2.8	5.8	68.2	205.5	145.1	346.5	9.8	4.3	227.3
South Carolina	—	3	2	C (D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	—	3	2	E (D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	F	(D)
Texas	E2	47	25	1.6	43.2	1.2	2.6	27.6	98.6	90.6	191.8	4.0	1.4	64.0
Virginia	—	2	1	E (D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Washington	—	3	1	C (D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
West Virginia	—	3	2	C (D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Wisconsin	—	4	4	F (D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.1	72.7
INDUSTRY 3495, WIRE SPRINGS														
United States	—	399	208	18.0	443.4	13.9	27.6	309.0	953.1	792.2	1 743.5	61.5	19.7	880.0
California	—	43	18	1.1	29.0	.8	1.6	17.9	46.0	45.4	91.1	3.6	1.3	58.4
Colorado	—	6	2	.2	4.0	.1	.3	3.0	12.6	12.0	24.6	(D)	.2	7.9
Connecticut	—	30	14	1.2	33.0	.8	1.7	21.0	50.4	24.6	75.1	2.5	1.0	38.4
Florida	—	10	5	.2	4.7	.2	.3	3.1	12.2	10.1	22.3	(D)	.2	12.4
Georgia	—	5	4	E (D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
Illinois	—	51	33	2.2	59.6	1.8	3.7	41.8	113.9	88.9	201.1	8.1	2.6	108.0
Indiana	—	17	12	1.2	31.3	.9	1.7	20.7	65.2	49.7	116.2	3.7	1.4	64.1
Kentucky	—	7	4	.7	15.3	.6	1.2	11.4	48.4	48.9	96.9	3.6	.8	38.8
Massachusetts	—	11	5	.4	9.7	.3	.6	7.2	24.2	23.6	47.5	(D)	.5	28.5
Michigan	E1	34	19	1.4	38.7	1.1	2.1	25.7	75.0	66.9	142.2	3.9	1.7	82.6
Minnesota	—	7	2	.1	3.6	.1	.2	2.5	8.8	7.4	16.0	(D)	(NA)	(NA)
Mississippi	—	1	1	F (D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Missouri	—	11	5	1.0	17.7	.9	1.7	14.5	46.3	39.3	86.8	(D)	.7	23.1
New Jersey	E2	8	4	C (D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
New York	E1	14	5	.3	6.5	.2	.5	4.5	18.4	11.3	29.9	1.5	E	(D)
North Carolina	—	14	9	F (D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	41.6
Ohio	E1	36	17	1.7	38.2	1.3	2.6	27.0	78.8	54.9	133.1	10.5	1.4	57.9
Oregon	—	3	3	.1	3.1	.1	.2	2.3	6.7	2.1	8.8	.5	(NA)	(NA)
Pennsylvania	—	21	11	1.2	36.2	.9	1.7	25.9	89.6	61.0	150.0	4.4	1.1	55.0
Tennessee	—	15	5	.8	20.7	.6	1.5	15.9	53.8	55.9	109.5	(D)	.6	33.0
Texas	—	21	14	.9	19.5	.7	1.4	14.1	50.4	50.5	100.9	4.1	.6	28.7
Wisconsin	—	7	6	.6	14.2	.3	.6	7.6	25.6	11.5	37.0	.5	(NA)	(D)
INDUSTRY 3496, MISCELLANEOUS FABRICATED WIRE PRODUCTS														
United States	E1	1 165	448	38.8	878.8	29.0	59.6	538.8	1 857.5	1 701.1	3 553.0	102.9	35.1	1 463.8
Alabama	—	18	9	.6	14.3	.4	.9	9.7	30.4	47.9	79.0	1.0	.5	24.3
Arizona	E2	11	2	.1	2.7	.1	.2	2.0	3.5	5.4	8.9	.1	(NA)	(NA)
Arkansas	—	12	6	1.0	17.6	.8	1.8	13.3	32.7	33.7	65.6	3.2	.6	18.6
California	E1	125	36	2.5	57.4	1.8	3.7	33.6	125.5	118.6	242.2	4.3	2.9	111.3
Colorado	E2	12	2	.1	2.8	.1	.1	1.6	6.0	6.6	13.3	.3	.2	11.0
Connecticut	—	34	16	.6	16.2	.4	.9	9.7	35.2	27.9	62.9	.8	.8	29.5
Florida	E1	35	9	1.3	29.5	.9	1.9	16.2	78.7	94.8	174.4	3.7	.8	41.0
Georgia	—	21	7	.5	11.4	.4	.6	6.5	26.8	28.1	55.0	1.5	E	(D)
Illinois	—	108	49	3.5	83.6	2.7	5.6	51.6	180.5	141.3	321.0	7.6	2.7	113.4
Indiana	—	37	22	2.0	40.3	1.6	2.9	27.5	72.9	68.6	141.4	12.0	1.2	49.1
Iowa	—	13	4	.4	9.6	.3	.7	7.4	20.5	14.5	35.2	(D)	.6	22.8
Kansas	—	13	3	.3	5.2	.2	.4	3.6	11.2	13.8	24.9	.3	(NA)	(NA)
Kentucky	—	14	9	.7	14.9	.6	1.1	11.0	33.1	24.1	57.5	1.3	.5	24.1
Maine	E1	13	1	.1	2.2	.1	.2	1.5	6.1	12.4	18.5	.1	(NA)	(NA)
Maryland	—	14	9	.8	22.1	.5	1.1	12.3	36.4	38.6	74.9	2.0	1.2	49.0
Massachusetts	—	27	7	.7	16.8	.5	1.1	9.1	36.6	38.4	73.5	1.7	F	(D)
Michigan	E1	50	16	1.4	31.9	1.0	2.1	19.0	67.6	59.5	126.8	1.8	1.6	64.8
Minnesota	—	25	10	.8	24.4	.5	1.1	13.6	54.6	41.2	95.0	1.3	1.0	52.7
Mississippi	E2	6	2	C (D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	—	25	14	3.1	58.0	2.2	4.6	34.1	133.9	96.7	229.9	11.1	1.8	76.4

See footnotes at end of table.

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		
	E1	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 3496, MISCELLANEOUS FABRICATED WIRE PRODUCTS—Con.														
New Hampshire	E8	8	3	.2	3.4	.1	.2	2.1	9.4	5.2	14.7	.2	(NA)	(D)
New Jersey	E3	56	25	1.6	43.1	1.2	2.3	23.9	84.2	80.1	164.1	2.9	1.7	78.1
New York	E3	69	15	1.7	35.8	1.2	2.4	22.2	61.8	52.5	114.8	3.0	1.7	64.3
North Carolina	—	26	15	1.2	23.7	.9	2.0	16.8	48.8	49.2	97.6	2.5	F	(D)
Ohio	—	68	31	2.2	49.5	1.5	3.4	30.0	92.6	81.5	172.5	5.5	2.1	79.3
Oklahoma	—	12	3	.8	14.5	.7	1.4	9.9	32.9	31.0	63.1	(D)	G	(D)
Oregon	—	23	10	.5	13.3	.4	.7	9.0	28.7	21.3	49.6	.7	.6	21.8
Pennsylvania	E2	71	29	2.7	76.8	2.0	4.1	43.5	170.5	158.5	331.2	9.6	2.8	127.6
Rhode Island	—	13	4	.3	5.1	.2	.4	3.2	12.3	7.4	20.6	.2	E	(D)
South Carolina	—	16	6	.5	11.7	.4	.8	6.9	36.5	35.8	72.2	3.0	.6	33.2
Tennessee	—	28	18	1.7	34.1	1.2	2.8	21.8	84.6	78.1	163.6	3.3	1.3	61.3
Texas	E1	70	28	2.5	51.4	1.9	4.1	34.8	92.1	107.9	198.0	11.0	1.4	52.8
Utah	—	4	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Vermont	E7	3	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Virginia	E1	9	4	.4	6.5	.3	.8	4.1	21.5	9.8	31.3	(D)	E	(D)
Washington	—	15	2	.2	5.7	.1	.2	3.2	10.3	7.7	17.7	(D)	.4	12.2
West Virginia	—	4	4	.3	6.3	.2	.5	4.1	8.9	14.6	24.1	.7	(NA)	(D)
Wisconsin	—	30	13	1.0	22.3	.7	1.5	11.9	38.0	26.0	63.7	1.3	1.1	40.0
INDUSTRY 3497, METAL FOIL AND LEAF														
United States	—	121	73	12.0	405.9	8.7	18.5	263.6	1 274.8	1 839.9	3 118.5	90.6	10.4	854.8
Alabama	E1	3	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Arizona	—	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	—	13	4	.4	10.5	.2	.5	6.1	27.2	31.3	58.9	1.0	F	(D)
Connecticut	—	2	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Georgia	—	4	3	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	—	9	6	1.3	41.3	.9	1.9	22.6	123.8	110.8	234.2	4.0	1.3	96.9
Kentucky	—	7	5	1.0	35.9	.8	1.6	24.6	158.4	308.3	465.2	(D)	F	(D)
Massachusetts	—	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Minnesota	—	2	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Missouri	—	4	1	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Nebraska	—	1	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	—	16	12	1.4	53.9	.8	2.0	27.6	114.6	149.5	262.7	15.9	1.4	75.9
New York	—	6	3	.4	12.3	.3	.6	9.4	41.3	46.6	85.3	(D)	(NA)	(D)
North Carolina	—	8	7	1.6	57.0	1.3	2.2	42.9	178.3	269.3	441.8	10.3	G	(D)
Ohio	—	9	7	1.3	45.2	1.0	2.3	30.7	105.6	160.6	270.2	(D)	1.5	126.9
Pennsylvania	—	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
South Carolina	—	3	3	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Texas	—	2	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	—	3	2	G	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	G	(D)
Wisconsin	—	5	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	E	(D)
INDUSTRY 3498, FABRICATED PIPE AND FITTINGS														
United States	E1	856	315	24.8	647.7	17.8	37.9	404.7	1 303.6	1 487.7	2 794.3	59.3	20.0	824.8
Alabama	—	16	6	.4	8.6	.3	.7	5.0	16.1	22.8	39.0	.9	(NA)	(NA)
Arkansas	—	11	8	1.1	26.7	.8	1.5	15.9	93.4	111.5	203.6	4.0	.3	8.0
California	E3	90	24	1.7	46.1	1.1	2.4	28.6	92.3	92.7	184.0	2.6	1.9	74.5
Delaware	—	4	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(D)
Florida	E1	17	2	.2	4.4	.1	.3	2.7	8.3	5.9	14.6	.2	(NA)	(NA)
Georgia	—	11	3	.4	9.3	.4	.7	7.6	21.6	39.1	59.9	(D)	E	(D)
Illinois	E1	35	13	.8	20.5	.6	1.2	11.7	36.7	37.8	74.4	(D)	.9	38.6
Indiana	E1	32	18	.9	22.8	.6	1.4	12.5	38.0	49.5	88.1	(D)	F	(D)
Kansas	—	11	3	.2	3.6	.1	.2	1.7	10.5	7.9	18.4	.1	(NA)	(NA)
Kentucky	E1	11	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	.6	28.2
Louisiana	—	23	14	1.7	45.7	1.3	2.9	34.9	73.1	120.9	189.4	2.5	.5	18.4
Maryland	—	6	1	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	.2	5.8
Massachusetts	E2	16	—	.1	2.6	.1	.2	1.9	5.0	7.4	12.4	.2	(NA)	(NA)
Michigan	E1	69	33	2.6	61.6	2.0	4.1	39.6	123.2	117.0	239.2	7.1	3.1	109.1
Minnesota	—	14	4	.3	8.7	.2	.5	5.8	17.4	13.4	31.2	.8	(NA)	(D)
Mississippi	—	6	2	.1	2.9	.1	.1	2.0	6.5	5.4	13.1	(D)	(NA)	(NA)
Missouri	E1	17	4	.3	5.6	.2	.4	3.4	10.9	12.6	23.9	(D)	.4	15.5
New Jersey	—	30	11	.7	17.6	.5	1.0	10.2	36.7	29.4	65.8	.9	.7	28.4
New York	E1	36	7	.5	14.2	.3	.7	7.7	27.9	23.5	51.3	1.5	E	(D)
North Carolina	—	21	9	.7	18.6	.5	.9	11.2	44.6	38.0	80.2	1.7	F	(D)
Ohio	E1	54	28	1.7	41.8	1.2	2.6	26.8	78.8	119.7	199.6	6.1	1.3	47.8
Oklahoma	E2	37	14	1.6	47.5	1.1	2.2	28.4	89.6	67.9	159.4	3.2	.7	38.6
Oregon	—	17	7	.5	14.3	.4	.8	9.6	30.6	21.5	52.6	.8	.3	8.0
Pennsylvania	E1	47	20	1.5	42.9	1.0	2.0	24.7	92.3	57.6	149.5	3.1	1.8	79.1
South Carolina	E5	8	2	E	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	4.0
Tennessee	—	16	6	.7	15.1	.5	1.3	9.8	30.8	51.8	81.5	3.5	.5	21.8
Texas	E1	96	42	3.5	89.8	2.4	5.5	53.9	144.9	265.8	421.8	10.0	2.3	97.0
Utah	E6	8	3	.2	6.8	.2	.4	5.0	18.7	18.3	34.8	(D)	.3	12.2
Washington	E3	14	6	.3	7.8	.2	.4	4.7	16.2	25.3	41.7	.9	(NA)	(NA)
Wisconsin	—	22	9	.6	17.9	.5	1.0	10.6	28.3	27.4	54.8	1.3	.3	14.0

See footnotes at end of table.

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		
	E ¹	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 3499, FABRICATED METAL PRODUCTS, N.E.C.														
United States -----	E2	3 444	775	69.8	1 781.0	49.9	100.8	1 063.9	3 714.9	3 240.1	6 944.6	208.0	72.5	3 380.9
Alabama -----	E1	39	7	.5	11.4	.4	.7	7.4	27.0	37.4	64.0	1.2	1.2	44.6
Arizona -----	E2	31	1	.2	5.3	.1	.3	2.6	11.0	10.2	21.5	.3	.3	12.3
Arkansas -----	E1	39	9	1.0	19.0	.7	1.4	12.3	35.2	31.8	67.0	2.7	1.0	17.5
California -----	E2	380	79	5.9	148.3	4.4	8.7	88.9	301.3	257.3	559.0	15.4	5.5	257.6
Colorado -----	-	53	9	.7	17.6	.4	.8	6.3	36.1	30.6	66.6	2.7	.7	27.7
Connecticut -----	E3	72	25	2.4	65.1	1.5	3.2	36.1	170.0	121.6	290.8	6.5	2.2	96.6
Florida -----	E2	130	19	1.9	43.8	1.4	2.9	27.8	83.6	73.9	159.8	3.5	2.2	83.7
Georgia -----	-	50	9	.9	15.5	.7	1.3	11.1	41.2	40.2	80.4	2.0	1.0	42.4
Illinois -----	E1	220	64	5.6	153.8	4.0	8.3	98.5	363.0	362.0	725.0	14.1	5.8	304.2
Indiana -----	E1	137	37	3.9	96.3	3.0	5.9	60.4	199.0	142.8	344.1	15.4	3.4	145.1
Iowa -----	-	36	8	1.0	20.8	.8	1.5	14.2	38.2	32.4	100.7	3.4	1.3	60.7
Kansas -----	E1	14	4	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	(NA)	(NA)
Kentucky -----	E2	57	11	1.6	43.9	1.2	2.6	29.9	77.4	76.2	154.2	3.2	1.5	57.2
Louisiana -----	E4	48	9	.6	13.0	.4	.8	7.1	27.3	23.4	50.0	.9	.3	12.0
Maine -----	E1	8	3	.5	14.1	.4	.8	12.1	40.2	18.4	58.5	(D)	.5	26.0
Maryland -----	E7	30	9	.6	13.2	.4	.8	8.1	33.2	44.2	76.3	1.8	.6	36.4
Massachusetts -----	E2	93	25	1.9	56.2	1.4	2.9	33.5	114.7	80.4	194.1	4.4	2.7	112.5
Michigan -----	E2	257	63	4.8	124.9	3.4	7.3	76.3	273.9	199.5	474.7	11.4	4.6	204.2
Minnesota -----	E1	110	13	1.2	32.2	.7	1.4	13.7	48.0	88.6	134.5	2.5	G	(D)
Mississippi -----	E7	17	1	.1	2.4	.1	.2	1.3	4.4	3.9	8.3	.4	(NA)	(NA)
Missouri -----	E3	65	9	.8	18.1	.6	1.2	11.6	33.5	32.8	65.7	1.8	.8	36.8
Montana -----	E4	5	2	C	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.1	(NA)	(NA)
Nebraska -----	-	14	6	1.0	23.3	.8	1.7	16.6	53.9	63.9	118.7	1.5	(NA)	(D)
New Hampshire -----	E1	19	3	.4	14.6	.2	.6	6.6	15.4	24.1	39.6	(D)	(NA)	(NA)
New Jersey -----	E2	96	23	1.7	44.8	1.2	2.2	23.3	101.4	71.5	171.6	6.2	3.1	144.6
New Mexico -----	E3	22	2	.1	2.3	.1	.2	1.5	4.9	3.5	8.5	.2	(NA)	(NA)
New York -----	E2	199	38	3.3	86.1	2.4	4.9	51.7	156.3	134.8	292.4	6.4	4.3	189.5
North Carolina -----	-	64	13	1.3	30.0	1.0	1.9	19.4	58.9	35.1	93.6	4.4	G	(D)
Ohio -----	E1	205	52	4.7	120.0	3.0	6.0	61.7	233.2	210.9	443.6	25.2	5.8	465.3
Oklahoma -----	E3	53	12	.9	21.9	.6	1.3	11.9	53.3	44.3	98.5	1.8	.5	22.9
Oregon -----	E3	53	6	.4	9.5	.3	.5	5.2	16.1	17.2	33.6	.5	.3	13.7
Pennsylvania -----	E1	211	70	7.9	214.3	5.4	10.9	126.8	402.0	369.4	766.2	25.5	7.2	341.7
Rhode Island -----	E8	22	7	1.2	23.0	.8	2.1	14.2	43.1	43.3	86.5	1.4	G	(D)
South Carolina -----	E2	34	8	.8	16.0	.6	1.0	9.7	17.6	29.9	46.7	3.8	.5	16.5
South Dakota -----	E9	7	1	.1	2.5	.1	.2	1.6	5.3	4.7	10.0	(D)	(NA)	(NA)
Tennessee -----	E2	63	15	1.7	36.7	1.3	2.7	24.9	72.2	74.7	146.0	2.4	2.1	62.6
Texas -----	E2	190	40	2.9	79.3	1.9	3.8	43.4	175.2	126.4	297.8	11.3	3.3	135.5
Utah -----	E1	34	11	1.1	27.7	.8	1.6	15.4	68.0	35.4	103.0	2.3	.5	20.8
Virginia -----	E7	40	7	.7	19.2	.5	.9	11.1	76.9	33.4	110.6	2.4	1.0	53.0
Washington -----	E1	73	8	.8	20.7	.6	1.1	14.0	42.6	29.8	71.9	1.5	.6	25.8
West Virginia -----	-	10	3	.1	3.4	.1	.2	2.5	6.5	20.5	26.8	.3	E	(D)
Wisconsin -----	E1	95	33	2.3	58.9	1.7	3.4	35.8	129.2	111.6	240.7	9.7	2.1	93.4

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

¹Payroll 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.

²Statistics 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	Industrial valves (SIC 3491)	Fluid power valves and hose fittings (SIC 3492)	Steel springs, except wire (SIC 3493)	Valves and pipe fittings, n.e.c. (SIC 3494)	Wire springs (SIC 3495)	Miscellaneous fabricated wire products (SIC 3496)	Metal foil and leaf (SIC 3497)	Fabricated pipe and fittings (SIC 3498)	Fabricated metal products, n.e.c. (SIC 3499)
Companies -----number...	389	305	107	228	313	1 091	104	810	3 369
All establishments -----number...	493	369	114	251	399	1 165	121	856	3 444
With 1 to 19 employees -----number...	165	167	68	101	191	717	48	541	2 669
With 20 to 99 employees -----number...	187	113	36	105	163	343	36	260	645
With 100 employees or more -----number...	141	89	10	45	45	105	37	55	130
Employment and labor costs:									
Employees -----1,000...	51.4	28.2	4.4	16.6	18.0	38.8	12.0	24.8	69.8
Compensation, total -----mil dol...	2 027.1	1 104.3	152.9	595.7	550.1	1 099.3	524.7	802.2	2 217.8
Annual payroll -----mil dol...	1 595.6	853.2	118.9	469.5	443.4	878.8	405.9	647.7	1 781.0
Fringe benefits -----mil dol...	431.5	251.1	34.0	126.2	106.7	220.5	118.8	154.5	436.8
Social Security and other legally required payments -----mil dol...	164.0	95.0	13.4	52.2	53.2	105.2	44.7	69.7	183.6
Employer voluntary payments -----mil dol...	267.5	156.2	20.5	74.0	53.5	115.2	74.1	84.8	253.3

See footnotes at end of table.

34F-16 MISC. FABRICATED METAL PRODUCTS

MANUFACTURES—INDUSTRY SERIES

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	Industrial valves (SIC 3491)	Fluid power valves and hose fittings (SIC 3492)	Steel springs, except wire (SIC 3493)	Valves and pipe fittings, n.e.c. (SIC 3494)	Wire springs (SIC 3495)	Miscellaneous fabricated wire products (SIC 3496)	Metal foil and leaf (SIC 3497)	Fabricated pipe and fittings (SIC 3498)	Fabricated metal products, n.e.c. (SIC 3499)
Production workers:									
Average for year ----- 1,000...	33.4	18.3	3.1	12.2	13.9	29.0	8.7	17.8	49.9
March ----- 1,000...	33.7	18.4	3.1	12.6	14.0	28.8	8.6	17.9	49.9
May ----- 1,000...	33.7	18.3	3.1	12.2	13.9	29.0	9.1	17.8	50.3
August ----- 1,000...	33.6	18.5	3.2	12.2	14.0	29.5	8.6	17.9	50.3
November ----- 1,000...	32.8	18.1	2.9	11.7	13.8	28.9	8.5	17.7	49.5
Hours ----- millions...	68.4	38.1	5.9	25.5	27.6	59.6	18.5	37.9	100.8
Wages ----- mil dol...	855.4	472.4	73.2	305.7	309.0	538.8	263.6	404.7	1 063.9
Cost of materials¹ ----- mil dol...	2 707.1	1 505.3	244.8	924.5	792.2	1 701.1	1 839.9	1 487.7	3 240.1
Materials, parts, containers, etc., consumed ² ----- mil dol...	2 281.2	1 251.4	169.8	793.9	613.4	1 475.3	1 672.9	1 289.4	2 685.7
Resales ----- mil dol...	229.0	133.5	50.7	65.4	114.2	99.2	93.5	83.1	226.8
Fuels ----- mil dol...	13.1	4.9	7.0	9.9	7.2	20.2	16.7	13.5	40.4
Purchased electricity ----- mil dol...	70.7	30.1	8.2	32.6	17.8	39.3	45.1	28.7	92.4
Contract work ----- mil dol...	113.1	85.3	9.1	22.7	39.5	67.0	11.5	73.0	194.8
Quantity of electric energy used for heat and power:									
Purchased ----- mil kWh...	1 188.5	445.9	123.9	550.1	275.1	615.0	884.3	445.3	1 449.1
Generated less sold ----- mil kWh...	(D)	(D)	--	--	--	--	--	--	(S)
Total value of shipments ----- mil dol...	6 762.5	3 273.9	495.8	1 991.7	1 743.5	3 553.0	3 118.5	2 794.3	6 944.6
Value added ----- mil dol...	4 046.0	1 743.0	247.3	1 054.2	953.1	1 857.5	1 274.8	1 303.6	3 714.9
Inventories by stage of fabrication:									
Beginning of 1992 ----- mil dol...	1 656.6	887.4	86.4	433.0	150.4	539.6	434.2	473.7	960.6
Finished goods ----- mil dol...	673.1	368.1	43.9	232.1	71.2	236.4	187.6	164.1	287.5
Work in process ----- mil dol...	480.3	270.3	13.5	89.3	24.5	104.8	87.8	119.9	286.1
Materials and supplies ----- mil dol...	503.1	249.0	29.0	111.6	54.7	198.4	158.8	189.7	387.0
End of 1992 ----- mil dol...	1 637.9	861.5	81.1	415.7	151.6	545.7	435.2	463.7	984.4
Finished goods ----- mil dol...	660.4	365.9	42.0	224.7	72.9	245.7	187.6	164.3	299.7
Work in process ----- mil dol...	483.6	246.9	11.6	83.6	24.6	101.2	83.9	116.7	284.4
Materials and supplies ----- mil dol...	493.9	248.7	27.4	107.3	54.2	198.8	163.7	182.7	400.3

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

¹Data 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.

²Data 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	Industrial valves (SIC 3491)	Fluid power valves and hose fittings (SIC 3492)	Steel springs, except wire (SIC 3493)	Valves and pipe fittings, n.e.c. (SIC 3494)	Wire springs (SIC 3495)	Miscellaneous fabricated wire products (SIC 3496)	Metal foil and leaf (SIC 3497)	Fabricated pipe and fittings (SIC 3498)	Fabricated metal products, n.e.c. (SIC 3499)
Gross book value of depreciable assets:									
Total:									
Beginning of year -----	2 497.1	1 218.6	222.7	688.0	584.7	1 055.4	1 083.6	760.8	2 205.0
New capital expenditures ¹ -----	212.7	114.0	17.5	45.3	61.5	102.9	90.6	59.3	208.0
Used capital expenditures -----	24.0	13.8	1.6	8.2	7.0	16.4	5.1	16.8	36.0
Retirements -----	63.7	38.5	12.8	19.4	11.1	67.3	17.7	24.9	45.3
End of year -----	2 670.0	1 307.9	228.9	720.0	642.1	1 107.3	1 161.6	812.0	2 403.7
Buildings and other structures:									
Beginning of year -----	557.1	251.3	50.8	143.0	126.2	253.7	198.9	162.5	491.1
New capital expenditures -----	30.7	18.2	2.1	7.9	7.7	22.0	7.4	11.7	35.1
Used capital expenditures -----	2.4	5	3	3	7	2.6	6	4.3	6.3
Retirements -----	7.1	3.7	3.8	2.9	5	17.8	1.2	3.8	8.1
End of year -----	583.2	266.3	49.3	148.3	134.1	260.4	205.8	174.7	524.4
Machinery and equipment:									
Beginning of year -----	1 940.0	967.3	171.9	544.9	458.5	801.7	884.7	598.3	1 714.0
New capital expenditures ¹ -----	182.0	95.9	15.4	37.4	53.8	80.9	83.2	47.5	172.9
Used capital expenditures -----	21.5	13.3	1.3	5.9	6.4	13.8	4.5	12.5	29.6
Retirements -----	56.7	34.8	9.0	16.5	10.6	49.5	16.5	21.1	37.2
End of year -----	2 086.8	1 041.6	179.6	571.8	508.0	846.9	955.9	637.2	1 879.3
Depreciation charges during 1992:									
Total -----	192.5	92.7	13.5	56.7	44.0	76.7	104.4	60.4	165.3
Buildings and other structures -----	22.5	11.1	1.8	8.4	6.1	14.3	10.8	9.2	21.8
Machinery and equipment -----	170.0	81.5	11.7	48.3	37.9	62.4	93.6	51.2	143.5
Rental payments:									
Total -----	50.5	27.2	8.0	23.3	19.6	52.4	15.7	37.8	105.8
Buildings and other structures -----	28.9	15.3	4.2	14.7	10.1	31.6	8.8	23.4	67.0
Machinery and equipment -----	21.6	12.0	3.8	8.6	9.5	20.9	6.9	14.4	38.8

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

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

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

Item	Industrial valves (SIC 3491)		Fluid power valves and hose fittings (SIC 3492)		Steel springs, except wire (SIC 3493)		Valves and pipe fittings, n.e.c. (SIC 3494)	
	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 -----	10.9	(X)	5.4	(X)	1.0	(X)	1.7	(X)
Response coverage ratio (percent) ² -----	83.9	(X)	71.6	(X)	58.2	(X)	72.0	(X)
Machinery -----	35.1	(X)	18.9	(X)	7.6	(X)	12.2	(X)
Response coverage ratio (percent) ² -----	82.4	(X)	76.6	(X)	58.2	(X)	72.7	(X)
Other purchased services:								
Communications -----	20.2	(X)	8.0	(X)	1.1	(X)	4.1	(X)
Response coverage ratio (percent) ² -----	84.2	(X)	73.8	(X)	58.2	(X)	74.7	(X)
Legal -----	10.8	(X)	6.5	(X)	.5	(X)	3.9	(X)
Response coverage ratio (percent) ² -----	83.5	(X)	75.6	(X)	58.2	(X)	72.8	(X)
Accounting and bookkeeping -----	6.4	(X)	2.2	(X)	.6	(X)	1.9	(X)
Response coverage ratio (percent) ² -----	80.6	(X)	73.1	(X)	52.1	(X)	72.7	(X)
Advertising -----	22.7	(X)	8.3	(X)	1.5	(X)	6.4	(X)
Response coverage ratio (percent) ² -----	83.3	(X)	76.5	(X)	58.2	(X)	69.6	(X)
Software and other data processing -----	23.7	(X)	5.1	(X)	1.3	(X)	2.4	(X)
Response coverage ratio (percent) ² -----	79.9	(X)	76.5	(X)	58.2	(X)	71.1	(X)
Refuse removal, including hazardous waste -----	7.1	(X)	2.6	(X)	(S)	(X)	3.8	(X)
Response coverage ratio (percent) ² -----	83.0	(X)	74.5	(X)	(S)	(X)	72.7	(X)
New machinery and equipment expenditures -----	182.0	(X)	95.9	(X)	15.4	(X)	37.4	(X)
Automobiles, trucks, etc., for highway use -----	2.3	17	1.9	20	(S)	(X)	.5	17
Computers and peripheral data processing equipment -----	17.4	12	8.5	7	(S)	(X)	2.8	6
All other -----	162.2	2	85.5	1	(S)	(X)	34.1	1
Adjustment ratio ³ -----	1.1	(X)	1.2	(X)	(S)	(X)	1.3	(X)
Cost of materials, components, parts, etc., used -----	2 281.2	(X)	1 251.4	(X)	169.8	(X)	793.9	(X)
Materials purchased or transferred from foreign sources ⁴ -----	207.4	12	33.1	11	(S)	(X)	63.9	28
Materials purchased or transferred from domestic sources -----	2 073.8	2	1 218.3	1	(S)	(X)	730.0	3
Adjustment ratio ³ -----	1.7	(X)	1.7	(X)	(S)	(X)	1.5	(X)

Item	Wire springs (SIC 3495)		Miscellaneous fabricated wire products (SIC 3496)		Metal foil and leaf (SIC 3497)		Fabricated pipe and fittings (SIC 3498)		Fabricated metal products, n.e.c. (SIC 3499)	
	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 -----	(S)	(X)	4.7	(X)	5.0	(X)	3.5	(X)	(S)	(X)
Response coverage ratio (percent) ² -----	(S)	(X)	78.9	(X)	98.9	(X)	63.2	(X)	(S)	(X)
Machinery -----	(S)	(X)	23.6	(X)	(S)	(X)	16.7	(X)	(S)	(X)
Response coverage ratio (percent) ² -----	(S)	(X)	77.4	(X)	(S)	(X)	65.1	(X)	(S)	(X)
Other purchased services:										
Communications -----	(S)	(X)	9.9	(X)	3.9	(X)	7.0	(X)	(S)	(X)
Response coverage ratio (percent) ² -----	(S)	(X)	80.4	(X)	86.5	(X)	59.8	(X)	(S)	(X)
Legal -----	(S)	(X)	6.2	(X)	5.2	(X)	3.6	(X)	(S)	(X)
Response coverage ratio (percent) ² -----	(S)	(X)	80.0	(X)	98.9	(X)	63.5	(X)	(S)	(X)
Accounting and bookkeeping -----	(S)	(X)	3.9	(X)	(S)	(X)	3.9	(X)	(S)	(X)
Response coverage ratio (percent) ² -----	(S)	(X)	76.8	(X)	(S)	(X)	65.9	(X)	(S)	(X)
Advertising -----	(S)	(X)	14.4	(X)	1.8	(X)	5.1	(X)	(S)	(X)
Response coverage ratio (percent) ² -----	(S)	(X)	78.7	(X)	98.9	(X)	64.1	(X)	(S)	(X)
Software and other data processing -----	(S)	(X)	3.1	(X)	(S)	(X)	1.4	(X)	(S)	(X)
Response coverage ratio (percent) ² -----	(S)	(X)	76.0	(X)	(S)	(X)	62.2	(X)	(S)	(X)
Refuse removal, including hazardous waste -----	(S)	(X)	3.9	(X)	8.1	(X)	1.9	(X)	(S)	(X)
Response coverage ratio (percent) ² -----	(S)	(X)	78.7	(X)	98.9	(X)	64.1	(X)	(S)	(X)
New machinery and equipment expenditures -----	53.8	(X)	80.9	(X)	83.2	(X)	47.5	(X)	172.9	(X)
Automobiles, trucks, etc., for highway use -----	.4	21	2.1	25	.4	29	2.1	24	(S)	(X)
Computers and peripheral data processing equipment -----	2.6	43	6.6	16	2.0	32	7.0	15	(S)	(X)
All other -----	50.8	3	72.2	3	80.7	1	38.4	4	(S)	(X)
Adjustment ratio ³ -----	.9	(X)	1.4	(X)	1.1	(X)	1.6	(X)	(S)	(X)
Cost of materials, components, parts, etc., used -----	613.4	(X)	1 475.3	(X)	1 672.9	(X)	1 289.4	(X)	2 685.7	(X)
Materials purchased or transferred from foreign sources ⁴ -----	25.0	50	128.0	22	50.9	11	(S)	(X)	(S)	(X)
Materials purchased or transferred from domestic sources -----	588.4	3	1 347.3	3	1 622.1	1	(S)	(X)	(S)	(X)
Adjustment ratio ³ -----	1.1	(X)	1.9	(X)	1.4	(X)	(S)	(X)	(S)	(X)

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

¹For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

²A 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.

³Detail 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.)

⁴Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

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

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

Industry and employment size class	E ¹	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3491, INDUSTRIAL VALVES												
Total	-	493	51.4	1 595.6	33.4	68.4	855.4	4 046.0	2 707.1	6 762.5	212.7	1 637.9
Establishments with an average of—												
1 to 4 employees	E4	57	.1	2.5	.1	.1	1.4	10.5	7.5	18.2	.4	4.6
5 to 9 employees	E5	47	.3	9.1	.2	.4	4.7	20.1	14.4	34.7	.9	8.4
10 to 19 employees	E2	61	.9	24.8	.5	1.1	12.3	61.2	42.3	103.3	2.5	20.4
20 to 49 employees	-	107	3.5	104.4	2.2	4.6	53.7	247.9	154.4	403.0	8.2	85.5
50 to 99 employees	-	80	5.7	176.9	3.6	7.5	92.9	443.1	357.0	803.7	27.1	196.2
100 to 249 employees	-	80	13.2	424.5	8.1	16.5	204.2	1 025.6	833.4	1 879.3	53.6	509.8
250 to 499 employees	-	48	16.4	487.8	11.4	23.6	287.9	1 357.7	807.4	2 148.5	74.4	526.7
500 to 999 employees	-	9	5.8	175.3	4.2	8.7	111.2	405.5	286.1	691.1	22.2	132.3
1,000 to 2,499 employees	-	4	5.5	190.3	3.1	5.9	87.1	474.4	204.6	680.7	23.3	154.0
Covered by administrative records ²	E9	90	.5	10.3	.3	.6	5.5	21.0	14.1	35.1	1.2	8.7
INDUSTRY 3492, FLUID POWER VALVES AND HOSE FITTINGS												
Total	-	369	28.2	853.2	18.3	38.1	472.4	1 743.0	1 505.3	3 273.9	114.0	861.5
Establishments with an average of—												
1 to 4 employees	E9	66	.1	3.5	.1	.2	2.1	7.2	5.9	13.1	.3	3.4
5 to 9 employees	E6	49	.3	8.2	.2	.4	4.5	18.6	11.1	30.5	.6	8.2
10 to 19 employees	E2	52	.7	20.1	.5	1.0	11.1	41.4	27.7	69.6	1.8	15.1
20 to 49 employees	-	60	2.0	56.7	1.3	2.9	31.1	116.3	106.1	225.0	5.6	55.5
50 to 99 employees	-	53	3.9	112.4	2.6	5.3	63.4	266.4	200.9	468.9	14.7	108.8
100 to 249 employees	-	54	8.3	243.9	5.3	11.0	133.0	457.8	393.4	864.9	34.9	205.1
250 to 499 employees	-	33	12.8	408.3	8.3	17.4	227.1	835.3	760.1	1 602.0	56.2	465.3
500 to 999 employees	-	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records ²	E9	114	.6	13.3	.4	.8	7.7	24.8	19.1	43.9	1.2	11.1
INDUSTRY 3493, STEEL SPRINGS, EXCEPT WIRE												
Total	-	114	4.4	118.9	3.1	5.9	73.2	247.3	244.8	495.8	17.5	81.1
Establishments with an average of—												
1 to 4 employees	E9	31	.1	1.8	.1	.1	1.1	2.8	3.1	6.0	.2	1.1
5 to 9 employees	-	11	.1	1.8	(Z)	.1	.9	3.8	2.6	6.3	.1	.8
10 to 19 employees	E1	26	.4	9.9	.2	.5	5.5	20.5	17.2	37.5	.4	7.8
20 to 49 employees	-	18	.5	15.8	.3	.7	7.7	32.7	24.7	57.8	5.7	7.3
50 to 99 employees	E1	18	1.4	38.0	1.0	2.0	23.3	81.9	74.4	156.6	7.2	26.0
100 to 249 employees	-	7	2.0	51.7	1.5	2.5	34.7	105.6	122.8	231.6	3.1	38.0
250 to 499 employees	-	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	(D)
Covered by administrative records ²	E9	28	.1	1.5	(Z)	.1	.9	2.3	2.6	4.9	.1	.9
INDUSTRY 3494, VALVES AND PIPE FITTINGS, N.E.C.												
Total	E1	251	16.6	469.5	12.2	25.5	305.7	1 054.2	924.5	1 991.7	45.3	415.7
Establishments with an average of—												
1 to 4 employees	E8	29	(Z)	1.3	(Z)	.1	1.0	3.1	2.5	5.6	.1	1.1
5 to 9 employees	E5	27	.2	5.0	.1	.3	3.5	12.0	9.7	22.0	.6	4.5
10 to 19 employees	E3	45	.6	16.8	.4	.9	9.7	33.3	27.6	60.9	1.3	12.8
20 to 49 employees	E2	59	1.9	54.4	1.2	2.6	29.9	123.7	102.4	227.1	5.1	48.7
50 to 99 employees	E2	46	3.2	89.6	2.3	4.9	56.8	190.2	173.1	364.0	7.8	70.6
100 to 249 employees	-	31	4.6	132.9	3.4	7.0	83.4	359.7	283.1	649.3	15.5	132.1
250 to 499 employees	-	10	3.3	92.9	2.4	5.1	62.0	179.3	226.6	413.6	8.8	79.7
500 to 999 employees	-	4	2.8	76.4	2.3	4.7	59.3	153.0	99.5	249.2	6.1	66.2
Covered by administrative records ²	E9	46	.3	6.0	.2	.4	4.0	10.6	9.7	20.3	.5	4.3
INDUSTRY 3495, WIRE SPRINGS												
Total	-	399	18.0	443.4	13.9	27.6	309.0	953.1	792.2	1 743.5	61.5	151.6
Establishments with an average of—												
1 to 4 employees	E7	62	.1	3.1	.1	.3	2.4	8.2	6.1	14.3	.3	1.4
5 to 9 employees	E4	57	.4	9.9	.3	.6	6.9	17.5	16.5	34.0	.7	2.8
10 to 19 employees	E1	72	1.0	22.7	.7	1.4	14.9	47.7	48.6	95.8	2.3	7.8
20 to 49 employees	-	108	3.5	88.0	2.6	5.1	55.6	188.4	156.8	345.7	11.0	29.7
50 to 99 employees	-	55	3.7	96.6	2.9	5.9	65.1	201.7	158.0	359.3	11.0	35.8
100 to 249 employees	-	36	5.8	141.5	4.6	8.8	100.8	308.8	243.1	549.8	26.0	47.6
250 to 499 employees	-	8	3.4	81.5	2.7	5.6	63.3	180.9	163.1	344.7	10.2	26.5
500 to 999 employees	-	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records ²	E9	102	.5	10.4	.4	.8	8.1	17.3	17.1	34.4	1.0	3.2

See footnotes at end of table.

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 3496, MISCELLANEOUS FABRICATED WIRE PRODUCTS												
Total	E1	1 165	38.8	878.8	29.0	59.6	538.8	1 857.5	1 701.1	3 553.0	102.9	545.7
Establishments with an average of—												
1 to 4 employees	E7	344	.7	14.0	.5	1.0	9.2	33.1	33.0	66.1	1.0	10.3
5 to 9 employees	E3	175	1.2	25.1	.8	1.8	15.9	54.1	61.0	115.4	1.6	19.3
10 to 19 employees	E1	198	2.8	63.8	2.0	4.1	36.1	154.7	132.9	285.8	3.8	37.3
20 to 49 employees	E1	229	6.7	154.7	4.9	10.2	90.5	325.3	369.1	698.2	11.8	92.7
50 to 99 employees	E1	114	7.8	183.4	5.9	12.4	110.2	363.3	376.9	736.7	35.4	110.7
100 to 249 employees	—	89	12.5	298.6	9.4	19.0	190.3	642.8	504.2	1 147.1	26.4	204.6
250 to 499 employees	—	11	3.9	90.1	3.0	6.4	52.1	172.6	154.0	324.1	12.9	35.9
500 to 999 employees	—	5	3.2	49.2	2.4	4.9	34.4	111.7	69.9	179.5	9.9	34.8
Covered by administrative records ²	E9	363	1.0	17.7	.8	1.5	11.6	37.7	38.4	76.1	1.4	12.5
INDUSTRY 3497, METAL FOIL AND LEAF												
Total	—	121	12.0	405.9	8.7	18.5	263.6	1 274.8	1 839.9	3 118.5	90.6	435.2
Establishments with an average of—												
1 to 4 employees	E6	22	(Z)	1.2	(Z)	.1	.8	3.9	6.6	10.5	.2	2.0
5 to 9 employees	E5	14	.1	2.6	.1	.1	1.7	6.9	13.2	20.1	.4	3.3
10 to 19 employees	—	12	.2	5.8	.1	.3	3.2	12.7	24.2	37.6	1.0	3.4
20 to 49 employees	—	18	.6	21.8	.4	.9	12.5	61.8	100.4	163.5	2.8	27.1
50 to 99 employees	—	18	1.4	44.4	1.0	2.4	28.7	140.9	259.0	398.4	6.0	62.9
100 to 249 employees	—	26	4.4	147.7	2.8	6.0	82.7	416.1	541.0	954.0	58.6	130.9
250 to 499 employees	—	7	2.3	81.1	1.8	4.3	59.1	273.1	391.1	668.8	12.7	96.3
500 to 999 employees	—	4	2.9	101.4	2.4	4.5	74.7	359.3	504.3	865.6	9.1	109.2
Covered by administrative records ²	E9	20	(Z)	1.2	(Z)	.1	.8	3.1	6.1	9.2	.2	1.4
INDUSTRY 3498, FABRICATED PIPE AND FITTINGS												
Total	E1	856	24.8	647.7	17.8	37.9	404.7	1 303.6	1 487.7	2 794.3	59.3	463.7
Establishments with an average of—												
1 to 4 employees	E8	214	.4	9.5	.3	.6	6.3	18.7	20.8	39.7	1.0	6.7
5 to 9 employees	E4	161	1.0	25.5	.8	1.6	16.7	49.9	48.9	96.8	2.1	27.0
10 to 19 employees	E1	166	2.3	61.1	1.6	3.3	37.1	129.2	121.4	250.7	4.2	40.8
20 to 49 employees	E1	176	5.7	148.5	4.0	8.3	88.5	284.8	318.8	604.8	13.6	97.2
50 to 99 employees	E1	84	5.8	154.2	4.2	8.9	98.7	347.8	346.1	695.3	13.0	105.5
100 to 249 employees	E1	44	6.3	164.3	4.6	10.0	99.4	337.5	383.6	714.6	18.6	112.5
250 to 499 employees	—	11	3.2	84.6	2.3	5.2	58.0	135.7	248.2	392.2	6.7	73.9
Covered by administrative records ²	E9	258	.8	16.2	.6	1.1	10.5	29.2	34.4	63.6	1.5	11.8
INDUSTRY 3499, FABRICATED METAL PRODUCTS, N.E.C.												
Total	E2	3 444	69.8	1 781.0	49.9	100.8	1 063.9	3 714.9	3 240.1	6 944.6	208.0	984.4
Establishments with an average of—												
1 to 4 employees	E8	1 364	2.2	49.9	1.6	3.0	30.6	117.1	95.7	212.2	6.2	31.8
5 to 9 employees	E4	722	4.9	106.7	3.5	7.0	66.7	220.3	183.2	402.2	9.1	61.0
10 to 19 employees	E2	583	8.0	189.3	5.7	11.3	114.5	380.7	305.5	686.7	17.2	92.8
20 to 49 employees	E1	474	14.4	362.0	10.3	21.0	210.3	782.7	660.2	1 443.7	41.4	197.5
50 to 99 employees	E2	171	11.7	297.2	8.7	17.6	181.3	638.3	564.8	1 198.0	29.0	185.9
100 to 249 employees	E2	100	15.2	406.7	10.9	22.1	241.0	857.6	746.5	1 600.8	50.3	257.9
250 to 499 employees	—	21	7.0	191.6	5.1	9.8	121.8	451.2	357.3	804.5	30.6	82.7
500 to 999 employees	E1	8	6.4	177.5	4.1	8.9	97.6	267.1	326.9	596.5	24.1	74.8
1,000 to 2,499 employees	—	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records ²	E9	1 520	4.3	76.5	3.2	5.8	46.7	160.2	141.5	301.7	9.5	45.2

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

¹Payroll 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.

²Report 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.

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)				
3491	Industrial valves: All establishments in industry -----	493	51.4	1 595.6	33.4	68.4	855.4	4 046.0	2 707.1	6 762.5	212.7
	Establishments with this product class primary:										
34911	Gates, globes, angles, straightway (Y-type) checks, stop and check, cross, 3- and 4-way, etc. -----	83	10.8	326.6	7.2	14.5	184.1	814.9	588.8	1 401.3	45.1
34912	Valves for water works and municipal equipment (IBBW, AWWA, and UL) -----	26	5.2	159.0	4.0	8.1	102.3	391.6	302.0	685.4	17.9
34913	Ball valves (all metals, pressures, and types) including manual and power-operated, on/off valves -----	36	4.5	145.6	3.0	6.2	75.5	449.5	317.1	768.2	28.4
34914	Butterfly valves (all metals, pressures, and types) including manual and power-operated, on/off valves -----	26	2.6	80.6	1.8	3.6	47.2	207.8	172.1	396.5	15.9
34915	Plug valves (all metals, pressures, and types), such as lubricated, cylindrical eccentric, and sleeve-lined -----	16	2.6	76.2	1.6	3.4	40.1	197.9	155.5	353.3	15.2
34916	Industrial valves, n.e.c. -----	53	5.9	204.1	3.7	8.0	104.0	461.7	268.3	728.4	19.6
34917	Nuclear valves (N-stamp only) -----	6	.6	24.3	.2	.5	8.9	60.5	21.2	81.6	2.8
34918	Automatic valves (regulating and control type) and parts (except nuclear) -----	81	11.8	385.6	7.0	14.1	191.3	978.5	588.3	1 568.5	45.3
34919	Solenoid-operated valves and parts, except nuclear and fluid power transfer -----	23	5.6	149.5	3.9	7.8	78.0	390.0	224.1	615.3	17.3
3492	Fluid power valves and hose fittings: All establishments in industry -----	369	28.2	853.2	18.3	38.1	472.4	1 743.0	1 505.3	3 273.9	114.0
	Establishments with this product class primary:										
3492A	Aerospace-type hydraulic fluid power valves -----	23	2.8	103.7	1.4	3.1	45.1	169.1	112.5	296.2	11.7
3492B	Aerospace-type pneumatic fluid power valves -----	10	.7	28.2	.3	.7	10.5	53.0	37.2	89.9	(D)
3492C	Nonaerospace-type hydraulic directional control valves -----	26	3.1	93.8	2.0	4.2	54.0	197.3	154.7	353.9	15.8
3492D	Nonaerospace-type hydraulic valves, except directional control -----	16	1.8	59.3	1.2	2.3	30.4	107.4	59.9	166.3	4.8
3492E	Nonaerospace-type pneumatic directional control valves -----	21	2.7	81.4	1.7	3.3	40.6	194.2	131.1	330.1	6.9
3492F	Nonaerospace-type pneumatic valves, except directional control -----	9	1.5	41.7	1.0	2.2	24.5	97.4	41.7	139.6	5.1
3492G	Parts for fluid power valves -----	7	.6	10.8	.2	.3	4.8	20.1	10.4	32.5	(D)
3492H	Aerospace-type hydraulic and pneumatic hose or tube end fittings and assemblies -----	29	3.9	124.6	2.5	5.2	69.8	224.4	163.9	401.8	13.9
3492J	Nonaerospace-type flared (metal) fittings, couplings for, and assemblies of tubing used in fluid power transfer systems -----	15	1.5	35.8	1.1	2.2	24.8	87.0	76.1	161.8	9.5
3492K	Nonaerospace-type flareless fittings and couplings (including nonmetal fittings) used in fluid power transfer systems -----	16	2.6	79.3	1.8	3.6	44.8	213.6	194.9	396.4	12.4
3492M	Nonaerospace-type hydraulic and pneumatic fittings and couplings for hose -----	37	4.4	124.8	3.3	6.9	83.8	226.5	391.5	622.9	25.1
3492N	Nonaerospace-type hydraulic and pneumatic assemblies of hose -----	13	1.2	32.9	.8	1.9	17.8	80.9	82.1	163.0	3.2
3493	Steel springs, except wire: All establishments in industry -----	114	4.4	118.9	3.1	5.9	73.2	247.3	244.8	495.8	17.5
	Establishments with this product class primary:										
34931	Hot formed springs -----	40	2.6	66.1	1.8	3.3	41.1	131.3	170.1	303.3	6.5
34932	Cold formed springs -----	28	1.5	45.2	1.1	2.2	27.6	105.1	62.8	169.8	6.3
3494	Valves and pipe fittings, n.e.c.: All establishments in industry -----	251	16.6	469.5	12.2	25.5	305.7	1 054.2	924.5	1 991.7	45.3
	Establishments with this product class primary:										
34944	Plumbing and heating valves and specialties, except plumbers' brass goods -----	21	2.1	67.9	1.3	2.9	34.5	157.6	113.7	270.7	8.8
34945	Metal fittings, flanges, and unions for piping systems -----	112	12.0	332.9	9.2	19.1	229.1	756.9	690.8	1 462.0	29.6
3495	Wire springs: All establishments in industry -----	399	18.0	443.4	13.9	27.6	309.0	953.1	792.2	1 743.5	61.5
	Establishments with this product class primary:										
34952	Precision mechanical springs -----	173	9.5	252.8	7.0	14.3	163.8	469.1	287.2	755.9	32.4
34953	Other wire springs -----	91	6.9	154.6	5.6	10.7	118.2	415.9	443.5	857.8	25.7
3496	Miscellaneous fabricated wire products: All establishments in industry -----	1 165	38.8	878.8	29.0	59.6	538.8	1 857.5	1 701.1	3 553.0	102.9
	Establishments with this product class primary:										
34961	Noninsulated ferrous wire rope, cable, and strand (not made in wiredrawing plants) -----	135	5.2	123.3	3.6	7.4	72.5	235.5	244.3	480.9	13.8
34964	Ferrous wire cloth and other ferrous woven wire products (not made in wiredrawing plants) -----	47	1.7	43.4	1.2	2.3	26.5	87.7	86.8	173.1	5.2
34965	Nonferrous wire cloth and other woven wire products (not made in wiredrawing plants) -----	17	.9	25.7	.7	1.4	14.9	71.1	56.1	129.1	1.9
34966	Fencing and fence gates (not made in wiredrawing plants) -----	57	1.4	30.9	1.0	2.1	18.2	59.9	94.1	154.6	3.0
34968	Other fabricated ferrous wire products (except springs) not made in wiredrawing plants) -----	439	26.8	599.0	20.3	42.1	370.7	1 278.3	1 111.2	2 381.5	74.6
3497	Metal foil and leaf: All establishments in industry -----	121	12.0	405.9	8.7	18.5	263.6	1 274.8	1 839.9	3 118.5	90.6
	Establishments with this product class primary:										
34971	Converted unmounted aluminum foil packaging products -----	19	3.0	97.8	2.1	4.5	65.0	433.9	618.7	1 056.7	8.9
34972	Laminated aluminum foil rolls and sheets for flexible packaging uses -----	40	5.8	194.1	4.4	9.1	134.0	552.8	824.0	1 375.7	49.4
34973	Converted foil for nonpackaging applications and foil and leaf -----	39	3.1	112.1	2.1	4.8	63.3	283.8	388.6	673.2	32.0
3498	Fabricated pipe and fittings: All establishments in industry -----	856	24.8	647.7	17.8	37.9	404.7	1 303.6	1 487.7	2 794.3	59.3

See footnotes at end of table.

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

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

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3499	Fabricated metal products, n.e.c.: All establishments in industry -----	3 444	69.8	1 781.0	49.9	100.8	1 063.9	3 714.9	3 240.1	6 944.6	208.0
	Establishments with this product class primary:										
34991	Safes and vaults -----	38	1.8	40.9	1.3	2.6	25.0	73.4	76.5	151.1	4.0
34992	Collapsible tubes -----	10	.7	18.6	.6	1.2	12.7	28.1	24.2	52.4	1.3
34993	Flat metal strapping -----	15	1.0	32.2	.7	1.5	23.4	106.0	210.9	317.9	3.9
34995	Metal ladders -----	35	2.9	69.5	2.0	3.9	39.8	159.8	162.9	319.5	9.3
34996	Powder metallurgy parts, excluding bearings, gears, and machine cutting tools and all cemented carbide parts -----	108	9.1	260.0	6.4	13.6	158.9	570.3	409.1	976.8	35.6
34998	All other fabricated metal products, n.e.c. -----	884	33.8	891.6	23.9	48.4	518.8	1 791.0	1 587.8	3 374.3	102.1

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

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

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

Industry	1992	1987	1982
INDUSTRY 3491, INDUSTRIAL VALVES			
Total value of shipments -----	6 762.5	4 590.6	(NA)
Primary products value of shipments -----	5 507.0	3 717.6	(NA)
Secondary products value of shipments -----	831.3	689.8	(NA)
Total miscellaneous receipts -----	424.2	183.2	(NA)
Value of resales -----	332.6	129.2	(NA)
Contract receipts -----	26.4	15.1	(NA)
Other miscellaneous receipts -----	65.2	39.0	(NA)
Primary products specialization ratio -----	87	84	(NA)
Value of primary products shipments made in all industries -----	6 127.2	4 224.1	(NA)
Value of primary products shipments made in this industry -----	5 507.0	3 717.6	(NA)
Value of primary products shipments made in other industries -----	620.2	506.5	(NA)
Coverage ratio -----	90	88	(NA)
INDUSTRY 3492, FLUID POWER VALVES AND HOSE FITTINGS			
Total value of shipments -----	3 273.9	2 451.5	(NA)
Primary products value of shipments -----	2 712.0	2 038.5	(NA)
Secondary products value of shipments -----	386.7	264.8	(NA)
Total miscellaneous receipts -----	175.2	148.3	(NA)
Value of resales -----	145.7	129.4	(NA)
Contract receipts -----	(D)	5.1	(NA)
Other miscellaneous receipts -----	(D)	13.8	(NA)
Primary products specialization ratio -----	88	89	(NA)
Value of primary products shipments made in all industries -----	3 283.4	2 730.4	(NA)
Value of primary products shipments made in this industry -----	2 712.0	2 038.5	(NA)
Value of primary products shipments made in other industries -----	571.4	691.9	(NA)
Coverage ratio -----	83	75	(NA)
INDUSTRY 3493, STEEL SPRINGS, EXCEPT WIRE			
Total value of shipments -----	495.8	458.5	413.5
Primary products value of shipments -----	380.5	349.8	300.1
Secondary products value of shipments -----	52.5	53.4	71.5
Total miscellaneous receipts -----	62.8	55.3	42.0
Value of resales -----	59.3	51.3	37.3
Contract receipts -----	(D)	.3	(D)
Other miscellaneous receipts -----	(D)	3.7	(D)
Primary products specialization ratio -----	88	87	81
Value of primary products shipments made in all industries -----	466.0	706.7	511.3
Value of primary products shipments made in this industry -----	380.5	349.8	300.1
Value of primary products shipments made in other industries -----	85.5	356.9	211.2
Coverage ratio -----	82	49	59

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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 3494, VALVES AND PIPE FITTINGS, N.E.C.			
Total value of shipments -----	1 991.7	2 377.3	(NA)
Primary products value of shipments -----	1 622.2	1 952.1	(NA)
Secondary products value of shipments -----	265.3	278.6	(NA)
Total miscellaneous receipts -----	104.2	146.6	(NA)
Value of resales -----	85.1	117.5	(NA)
Contract receipts -----	3.7	8.3	(NA)
Other miscellaneous receipts -----	15.4	20.8	(NA)
Primary products specialization ratio -----	86	88	(NA)
Value of primary products shipments made in all industries -----	1 962.6	2 294.5	(NA)
Value of primary products shipments made in this industry -----	1 622.2	1 952.1	(NA)
Value of primary products shipments made in other industries -----	340.4	342.4	(NA)
Coverage ratio -----	83	85	(NA)
INDUSTRY 3495, WIRE SPRINGS			
Total value of shipments -----	1 743.5	1 580.4	1 104.3
Primary products value of shipments -----	1 437.0	1 376.9	994.8
Secondary products value of shipments -----	157.0	141.3	81.4
Total miscellaneous receipts -----	149.5	62.2	28.0
Value of resales -----	146.5	54.1	25.6
Contract receipts -----	1.3	1.4	.3
Other miscellaneous receipts -----	1.7	6.7	2.1
Primary products specialization ratio -----	90	91	92
Value of primary products shipments made in all industries -----	1 534.0	1 474.7	1 064.2
Value of primary products shipments made in this industry -----	1 437.0	1 376.9	994.8
Value of primary products shipments made in other industries -----	96.9	97.8	69.4
Coverage ratio -----	94	93	93
INDUSTRY 3496, MISCELLANEOUS FABRICATED WIRE PRODUCTS			
Total value of shipments -----	3 553.0	2 720.8	2 358.4
Primary products value of shipments -----	3 213.7	2 475.6	2 103.1
Secondary products value of shipments -----	178.7	137.1	152.2
Total miscellaneous receipts -----	160.6	108.1	103.1
Value of resales -----	134.6	92.9	83.4
Contract receipts -----	11.6	9.0	6.8
Other miscellaneous receipts -----	14.4	6.1	12.9
Primary products specialization ratio -----	95	95	93
Value of primary products shipments made in all industries -----	3 466.6	2 744.7	(NA)
Value of primary products shipments made in this industry -----	3 213.7	2 475.6	(NA)
Value of primary products shipments made in other industries -----	252.9	268.8	(NA)
Coverage ratio -----	93	90	(NA)
INDUSTRY 3497, METAL FOIL AND LEAF			
Total value of shipments -----	3 118.5	2 286.6	1 846.3
Primary products value of shipments -----	2 489.7	1 820.1	1 433.7
Secondary products value of shipments -----	512.5	363.0	355.9
Total miscellaneous receipts -----	116.3	103.6	57.0
Value of resales -----	91.0	64.7	27.7
Contract receipts -----	1.3	4.4	(D)
Other miscellaneous receipts -----	24.0	34.4	(D)
Primary products specialization ratio -----	83	81	81
Value of primary products shipments made in all industries -----	2 889.4	2 099.8	1 758.0
Value of primary products shipments made in this industry -----	2 489.7	1 820.1	1 433.7
Value of primary products shipments made in other industries -----	399.7	279.7	324.3
Coverage ratio -----	86	87	82
INDUSTRY 3498, FABRICATED PIPE AND FITTINGS			
Total value of shipments -----	2 794.3	1 725.5	3 105.8
Primary products value of shipments -----	2 528.9	1 599.4	2 865.7
Secondary products value of shipments -----	108.8	50.9	87.1
Total miscellaneous receipts -----	156.6	75.2	153.0
Value of resales -----	91.5	41.4	122.2
Contract receipts -----	40.5	28.7	11.1
Other miscellaneous receipts -----	24.5	5.1	19.7
Primary products specialization ratio -----	96	97	97
Value of primary products shipments made in all industries -----	2 755.3	1 759.5	3 035.3
Value of primary products shipments made in this industry -----	2 528.9	1 599.4	2 865.7
Value of primary products shipments made in other industries -----	226.4	160.1	169.7
Coverage ratio -----	92	91	94

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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 3499, FABRICATED METAL PRODUCTS, N.E.C.			
Total value of shipments	6 944.6	6 148.6	4 406.0
Primary products value of shipments	6 003.7	5 154.8	3 674.1
Secondary products value of shipments	481.0	413.8	323.2
Total miscellaneous receipts	459.8	580.0	408.6
Value of resales	300.5	241.0	164.3
Contract receipts	117.2	88.4	(D)
Other miscellaneous receipts	42.1	250.6	(D)
Primary products specialization ratio	93	93	92
Value of primary products shipments made in all industries	6 544.3	5 702.9	4 210.9
Value of primary products shipments made in this industry	6 003.7	5 154.8	3 674.1
Value of primary products shipments made in other industries	540.6	548.1	536.8
Coverage ratio	92	90	87

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

Table 6a-1. 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)
3491--	INDUSTRIAL VALVES				
	Total	(NA)	6 127.2	(NA)	4 224.1
34911	Gates, globes, angles, straightway (Y-type) checks, stop and check, cross, 3- and 4-way, etc.,	(NA)	1 164.1	(NA)	755.4
34911 11	Iron body, including ductile or modular, all pressures (excluding IBBM, AWWA, and UL)	33	143.1	26	113.7
	Carbon steel:				
34911 21	Cast	45	251.0	36	163.3
34911 23	Forged	23	173.4	16	95.4
34911 34	Alloy steel and other metals	59	241.8	38	140.8
34911 38	Brass and bronze (125 lb, w.s.p. or more)	44	254.4	29	156.9
34911 43	Actuators (power-operated, on/ off mounted)	11	10.7	8	15.5
34911 52	Parts	32	78.9	30	69.7
34911 00	Gates, globes, angles, straightway (y-type) checks, stop and check, cross, 3- and 4-way, etc., n.s.k.	(NA)	10.7	(NA)	-
34912	Valves for water works and municipal equipment (IBBW, AWWA, and UL)	(NA)	546.2	(NA)	401.2
34912 01	IBBM gate line and tapping valves	9	163.7	8	142.7
	UL valves (all pressures):				
34912 11	Check valves	9	15.2	3	10.0
34912 21	All others, including pest indicators	12	33.6	10	19.7
34912 23	Tapping sleeves and crosses	7	14.5	5	18.8
34912 31	Fire hydrants	7	121.9	7	75.4
	AWWA valves (all pressures):				
34912 35	Check valves	12	57.7	11	52.5
34912 41	Butterfly valves	9	79.4	11	55.7
34912 43	Parts	11	52.3	10	26.3
34912 00	Valves for water works and municipal equipment (IBBW, AWWA, and UL), n.s.k.	(NA)	8.0	(NA)	-
34913	Ball valves (all metals, pressures, and types), including manual and power-operated, on/ off valves	(NA)	941.5	(NA)	528.9
34913 11	Iron, including ductile	19	54.5	9	18.8
34913 23	Brass and bronze	36	166.1	30	156.6
34913 35	Carbon steel (cast and fabricated)	29	268.6	29	153.9
34913 47	Alloy steel and other metals	31	278.1	25	134.9
34913 59	Actuators (power-operated, on/ off mounted)	14	70.1	15	35.4
34913 61	Parts	25	103.4	13	29.4
34913 00	Ball valves (all metals, pressures, and types), including manual and power-operated, on/ off valves, n.s.k.	(NA)	.6	(NA)	-

See footnotes at end of table.

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Table 6a-1. 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)
3491—	INDUSTRIAL VALVES—Con.				
34914	Butterfly valves (all metals, pressures, and types), including manual and power-operated, on/off valves -----	(NA)	368.1	(NA)	195.3
	Industrial types, including elastomer and fluoroelastics, lined:				
34914 11	Iron, including ductile -----	28	89.6	20	44.7
34914 13	Brass and bronze -----	7	21.2	(NA)	19.7
34914 15	Carbon steel (cast and fabricated) -----	14	59.8		
34914 17	Alloy steel and other metals -----	18	18.6	7	41.3
	High-pressure types (shut-off to full ANSI class ratings):				
34914 21	Iron -----	3		(NA)	
34914 23	Carbon steel (cast and fabricated) -----	12	52.7	(NA)	30.1
34914 25	Alloy steel and other metals -----	15	52.2	5	14.2
34914 31	Actuators (power-operated, on/off mounted) -----	13	49.9	9	23.6
34914 61	Parts -----	9	21.6	11	21.7
34914 00	Butterfly valves (all metals, pressures, and types), including manual and power-operated, on/off valves, n.s.k. -----	(NA)	2.4	(NA)	—
34915	Plug valves (all metals, pressures, and types), such as lubricated, cylindrical eccentric, and sleeve-lined -----	(NA)	274.6	(NA)	212.9
34915 11	Iron, including ductile -----	13	82.3	14	66.0
34915 23	Carbon steel -----	17	88.4	9	54.3
34915 35	Alloy steel and other metals -----	19	81.7	17	63.7
34915 47	Actuators (power-operated, on/off mounted) -----	4	(D)	5	6.7
34915 61	Parts -----	8	12.5	6	22.2
34915 00	Plug valves (all metals, pressures, and types), such as lubricated, cylindrical eccentric, and sleeve-lined, n.s.k. -----	(NA)	(D)	(NA)	—
34916	Industrial valves, n.e.c. -----	(NA)	641.9	(NA)	498.6
34916 11	Cocks and stops (all metals, pressures, and types) -----	11	15.7	4	3.2
34916 23	Diaphragm and pinch valves, including operators (all metals, pressures, and types); excluding automatic valves -----	11	50.7	11	66.7
	Pop safety valves and relief valves (more than 15 lb. w.s.p.):				
34916 31	Iron and steel -----	18	145.6	15	104.4
34916 33	Brass and bronze -----	18	59.9	13	53.5
34916 41	Compressed gas cylinder valves -----	9	78.3	5	20.9
34916 53	Steam traps (more than 15 lb. w.s.p.) -----	5	(D)	5	27.1
34916 65	Thru conduit pipeline valves -----	3	(D)	3	1.7
34916 78	Actuators, sold separately (power-operated, on/off mounted) ³ -----	8	32.4	(NA)	(NA)
34916 98	Other metal valves, excluding control valves, regulators, and solenoid valves -----	43	155.7	45	107.7
34916 00	Industrial valves, n.e.c., n.s.k. -----	(NA)	62.5	(NA)	93.7
34917	Nuclear valves (N-stamp only) -----	(NA)	100.8	(NA)	86.4
	Gate, globe, and check valves:				
34917 11	Cast-carbon steel and low alloy -----	11	27.0	6	11.6
34917 13	Forged-carbon steel and low alloy -----	6	5.5	5	17.6
34917 15	Corrosion-resistant alloy steel -----	7	19.2	6	13.7
34917 27	Ball valves, butterfly valves, and plug valves (on/off only) -----	5	5.8	4	2.7
34917 31	Actuators (mounted power-operated, on/off) -----	4	8.6	7	17.4
34917 39	Automated control valves -----	5	4.6	2	.5
34917 98	Parts -----	10	27.4	6	21.3
34917 00	Nuclear valves (N-stamp only), n.s.k. -----	(NA)	2.7	(NA)	1.5
34918	Automatic valves (regulating and control type) and parts (except nuclear) -----	(NA)	1 530.8	(NA)	1 179.9
34918 00	Automatic regulating and control valves, power-operated; designed for modulating (throttling) service -----	114	1 530.8	119	1 179.9
34919	Solenoid-operated valves and parts, except nuclear and fluid power transfer -----	(NA)	393.4	(NA)	317.3
34919 00	Solenoid-operated valves and parts, except nuclear and fluid power transfer -----	33	393.4	34	317.3
34910	Industrial valves, n.s.k. -----	(NA)	165.8	(NA)	48.0
34910 00	Industrial valves, n.s.k. ⁴ -----	(NA)	132.5	(NA)	—
34910 02	Industrial valves, n.s.k. ⁵ -----	(NA)	33.3	(NA)	48.0
3492—	FLUID POWER VALVES AND HOSE FITTINGS				
	Total -----	(NA)	3 283.4	(NA)	2 730.4
3492A	Aerospace-type hydraulic fluid power valves -----	(NA)	357.4	(NA)	(³)
3492A 00	Aerospace-type hydraulic fluid power valves ³ -----	54	357.4	(NA)	(³)
3492B	Aerospace-type pneumatic fluid power valves -----	(NA)	108.7	(NA)	³ 373.3
3492B 00	Aerospace-type pneumatic fluid power valves ³ -----	35	108.7	(NA)	³ 373.3
3492C	Nonaerospace-type hydraulic directional control valves -----	(NA)	319.0	(NA)	(³)
3492C 00	Nonaerospace-type hydraulic directional control valves ³ -----	65	319.0	(NA)	(³)
3492D	Nonaerospace-type hydraulic valves, except directional control -----	(NA)	277.7	(NA)	³ 519.1
3492D 00	Nonaerospace-type hydraulic valves, except directional control ³ -----	54	277.7	(NA)	³ 519.1
3492E	Nonaerospace-type pneumatic directional control valves -----	(NA)	324.9	(NA)	(³)
3492E 00	Nonaerospace-type pneumatic directional control valves ³ -----	48	324.9	(NA)	(³)
3492F	Nonaerospace-type pneumatic valves, except directional control -----	(NA)	146.2	(NA)	³ 364.0
3492F 00	Nonaerospace-type pneumatic valves, except directional control ³ -----	44	146.2	(NA)	³ 364.0
3492G	Parts for fluid power valves -----	(NA)	137.0	(NA)	175.6
3492G 00	Parts for fluid power valves ³ -----	65	137.0	103	175.6
3492H	Aerospace-type hydraulic and pneumatic hose or tube end fittings and assemblies -----	(NA)	359.2	(NA)	292.1
3492H 00	Aerospace-type hydraulic and pneumatic hose or tube end fittings and assemblies ³ -----	39	359.2	58	292.1

See footnotes at end of table.

Table 6a-1. 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)
3492—	FLUID POWER VALVES AND HOSE FITTINGS—Con.				
3492J	Nonaerospace-type flared (metal) fittings, couplings for, and assemblies of tubing used in fluid power transfer systems	(NA)	191.3	(NA)	(³)
3492J 00	Nonaerospace-type flared (metal) fittings, couplings for, and assemblies of tubing used in fluid power transfer systems ³	20	191.3	(NA)	(³)
3492K	Nonaerospace-type flareless fittings and couplings (including nonmetal fittings) used in fluid power transfer systems	(NA)	339.9	(NA)	³ 433.8
3492K 00	Nonaerospace-type flareless fittings and couplings (including nonmetal fittings) used in fluid power transfer systems ³	26	339.9	(NA)	³ 433.8
3492M	Nonaerospace-type hydraulic and pneumatic fittings and couplings for hose	(NA)	408.7	(NA)	(³)
3492M 00	Nonaerospace-type hydraulic and pneumatic fittings and couplings for hose ³	48	408.7	(NA)	(³)
3492N	Nonaerospace-type hydraulic and pneumatic assemblies of hose	(NA)	199.1	(NA)	³ 518.8
3492N 00	Nonaerospace-type hydraulic and pneumatic assemblies of hose ³	28	199.1	(NA)	³ 518.8
34920	Fluid power valves and hose fittings, n.s.k.	(NA)	114.4	(NA)	53.8
34920 00	Fluid power valves and hose fittings, n.s.k. ⁶	(NA)	72.1	(NA)	—
34920 02	Fluid power valves and hose fittings, n.s.k. ⁷	(NA)	42.3	(NA)	53.8

Product code	Product	1992				1987			
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Value (million dollars)	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)		
3493—	STEEL SPRINGS, EXCEPT WIRE								
	Total	(NA)	(X)	466.0	(NA)	(X)	706.7		
34931	Hot formed springs	(NA)	(X)	246.3	(NA)	(X)	499.7		
	Hot formed, helical springs, hot wound:								
	Automobile coil springs:								
34931 05	Shipments for domestic replacement and shipments to U.S. motor vehicle manufacturers	9	(X)	60.6	(NA)	(X)	251.7		
34931 06	Shipments to U.S. motor vehicle manufacturers or their suppliers for use in original equipment	4	(X)	5.0					
34931 16	Locomotive and railroad car and other helical springs, hot wound	1,000 s tons	(S)	24.1	5	11.0	12.9		
	Hot formed leaf springs for automotive (auto, truck, bus, trailer, etc.):								
34931 55	Shipments for domestic replacement and shipments for export	1,000 s tons		48.9	15	48.0	53.5		
34931 57	Shipments to U.S. motor vehicle manufacturers or their suppliers for use in original equipment	12	**36.6	67.3	7	(X)	137.2		
34931 99	Other hot formed springs, including torsion bar springs and leaf springs for tractors, farm equipment, locomotive, etc.	7	(X)	17.0	9	(X)	24.0		
34931 00	Hot formed springs, n.s.k.	(NA)	(X)	23.4	(NA)	(X)	20.3		
34932	Cold formed springs	(NA)	(X)	197.4	(NA)	(X)	151.1		
34932 10	Cold formed flat springs made of sheet or strip	62	(X)	160.8	55	(X)	129.2		
34932 20	Cold formed helical suspension springs	14	(X)	34.0	17	(X)	18.2		
34932 00	Cold formed springs, n.s.k.	(NA)	(X)	2.6	(NA)	(X)	3.7		
34930	Steel springs, except wire, n.s.k.	(NA)	(X)	22.3	(NA)	(X)	56.0		
34930 00	Steel springs, except wire, n.s.k. ⁸	(NA)	(X)	17.4	(NA)	(X)	39.8		
34930 02	Steel springs, except wire, n.s.k. ⁹	(NA)	(X)	4.9	(NA)	(X)	16.2		

Product code	Product	1992		1987	
		Number of companies with shipments of \$100,000 or more	Value of product shipments ¹ (million dollars)	Number of companies with shipments of \$100,000 or more	Value of product shipments ¹ (million dollars)
3494—	VALVES AND PIPE FITTINGS, N.E.C.				
	Total	(NA)	1 962.6	(NA)	2 294.5
34944	Plumbing and heating valves and specialties, except plumbers' brass goods	(NA)	362.5	(NA)	392.8
34944 21	Safety and relief valves	23	84.2	16	115.6
34944 31	Check valves	12	29.0	9	26.6
34944 41	All other plumbing and heating valves (less than 125 lb w.s.p.)	17	66.6	19	143.9
34944 51	Plumbing and heating valve specialties	18	118.2	10	27.9
34944 99	Parts	13	51.4	17	69.7
34944 00	Plumbing and heating valves and specialties, except plumbers' brass goods, n.s.k.	(NA)	13.1	(NA)	9.2

See footnotes at end of table.

34F-26 MISC. FABRICATED METAL PRODUCTS

MANUFACTURES—INDUSTRY SERIES

Table 6a-1. 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)
3494—	VALVES AND PIPE FITTINGS, N.E.C.—Con.				
34945	Metal fittings, flanges, and unions for piping systems -----	(NA)	1 356.5	(NA)	1 404.3
	Gray iron:				
34945 11	Fittings, flanges, and unions -----	11	86.2	10	74.5
34945 12	Grooved fittings and couplings -----	4	9.9	5	8.9
	Malleable iron:				
34945 13	Fittings and flanges, including reducers, caps, etc. -----	9	101.3	8	118.2
34945 14	Grooved fittings and couplings -----	4	(D)	3	(D)
34945 15	Unions and union fittings -----	9	32.5	9	27.4
	Ductile iron:				
34945 16	Fittings, flanges, and unions -----	7	26.6	6	7.1
34945 17	Grooved fittings and couplings -----	5	22.1	1	(D)
	Copper, brass, or bronze, including solder and threaded types:				
34945 18	Cast brass or bronze fittings, flanges, and unions -----	29	107.6	17	136.6
34945 19	Wrought copper and wrought copper alloy fittings, flanges, and unions -----	14	215.4	17	286.1
34945 21	Cast carbon and alloy steel fittings, flanges, and unions -----	15	29.7	10	25.0
	Forged carbon, alloy, and stainless steel:				
34945 23	Fittings, flanges, and unions; socket-weld or threaded-type -----	23	189.3	26	155.6
	Flanges, butt-welding type:				
34945 32	Carbon steel -----	15	56.5	16	52.6
34945 34	Alloy steel -----	9	16.7	7	2.5
34945 37	Stainless steel -----	13	29.8	11	15.8
	Fittings, butt-welding type:				
34945 42	Carbon steel -----	9	38.2	14	82.1
34945 44	Alloy steel -----	2	(D)	5	3.6
34945 47	Stainless steel -----	16	57.2	11	19.1
34945 71	Pipe hangers and supports (not including metal framing) -----	14	65.4	13	52.1
34945 85	Pipe couplings -----	22	98.7	19	94.6
34945 99	Other metal fittings, flanges, and unions, including metal framing and fittings for mechanical and electrical supports -----	35	107.6	33	107.1
34945 00	Metal fittings, flanges, and unions for piping systems, n.s.k. -----	(NA)	36.5	(NA)	96.7
34940	Valves and pipe fittings, n.e.c., n.s.k. -----	(NA)	243.7	(NA)	497.4
34940 00	Valves and pipe fittings, n.e.c., n.s.k. ¹⁰ -----	(NA)	223.4	(NA)	432.2
34940 02	Valves and pipe fittings, n.e.c., n.s.k. ¹¹ -----	(NA)	20.3	(NA)	65.2
3495—	WIRE SPRINGS				
	Total -----	(NA)	1 534.0	(NA)	1 474.7
34952	Precision mechanical springs -----	(NA)	653.5	(NA)	517.2
	Compression-type:				
34952 12	Shipped to original equipment manufacturers -----	123	256.4	100	217.4
34952 14	Other shipments -----	47	75.4	44	56.2
34952 15	Extension-type -----	108	158.7	90	149.6
34952 17	Torsion-type -----	111	140.4	80	88.8
34952 00	Precision mechanical springs, n.s.k. -----	(NA)	22.6	(NA)	5.3
34953	Other wire springs -----	(NA)	748.7	(NA)	809.9
	Upholstery and furniture springs (unassembled):				
34953 11	Seat and back springs for motor vehicles -----	11		7	(¹²)
34953 13	Springs for mattresses and bedsprings, excluding complete bedsprings -----	4	161.0	9	37.4
34953 17	Sprung units for box springs, innerspring mattresses, and dual-purpose sleep furniture -----	10	333.2	12	335.6
34953 18	Sprung units for upholstered furniture -----	13	31.5	6	11.7
34953 19	Other upholstery and furniture springs (unassembled) -----	8	21.9	8	1256.0
34953 21	Valve springs -----	21	79.6	9	63.0
34953 98	Other wire springs -----	61	117.8	45	81.5
34953 00	Other wire springs, n.s.k. -----	(NA)	3.7	(NA)	24.8
34950	Wire springs, n.s.k. -----	(NA)	131.7	(NA)	147.6
34950 00	Wire springs, n.s.k. ⁶ -----	(NA)	97.3	(NA)	101.1
34950 02	Wire springs, n.s.k. ⁷ -----	(NA)	34.4	(NA)	46.5
3496—	MISCELLANEOUS FABRICATED WIRE PRODUCTS				
	Total -----	(NA)	3 466.6	(NA)	2 744.5
34961	Noninsulated ferrous wire rope, cable, and strand (not made in wiredrawing plants) -----	(NA)	447.9	(NA)	349.8
34961 13	Rope and cable made from steel wire, excluding fabricated wire rope assemblies -----	44	95.3	39	99.9
34961 15	Fabricated wire rope assemblies, including lifting slings -----	56	97.0	42	65.1
34961 34	Steel wire strand, including strand for prestressed concrete, composite wire strand, except ACSR, and guard rail cable ³ -----	17	72.2	(NA)	(D)
34961 52	Other noninsulated ferrous wire rope, cable, and strand, including composite rope and cable and wire forms ³ -----	77	183.4	(NA)	(D)
34961 00	Noninsulated ferrous wire rope, cable, and strand (not made in wiredrawing plants), n.s.k. -----	(NA)	—	(NA)	39.6
34964	Ferrous wire cloth and other ferrous woven wire products (not made in wiredrawing plants) -----	(NA)	179.6	(NA)	122.4
34964 00	Ferrous wire cloth and other ferrous woven wire products not made in wiredrawing plants ³ -----	48	179.6	(NA)	122.4
34965	Nonferrous wire cloth and other woven wire products (not made in wiredrawing plants) -----	(NA)	145.8	(NA)	115.0
34965 00	Nonferrous wire cloth and other woven wire products ³ -----	29	145.8	(NA)	115.0

See footnotes at end of table.

Table 6a-1. 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)
3496—	MISCELLANEOUS FABRICATED WIRE PRODUCTS—Con.				
34966	Fencing and fence gates (not made in wire-drawing plants) -----	(NA)	140.3	(NA)	130.6
34966 13	Chain link fencing, excluding posts, gates, and fittings (including galvanized and plastics coated) ³ -----	25	47.2	(NA)	53.0
34966 21	Woven and welded fencing, including galvanized and plastics coated ³ -----	12	9.1	(NA)	14.1
34966 35	Fence gates, posts, and fittings -----	29	69.8	(NA)	56.2
34966 71	Ornamental lawn fence, excluding posts, gates, and fittings -----	8	11.0	(NA)	7.2
34966 00	Fencing and fence gates (not made in wire-drawing plants), n.s.k. ---	(NA)	3.1	(NA)	
34968	Other fabricated ferrous wire products (except springs) not made in wire-drawing plants) -----	(NA)	2 323.2	(NA)	1 491.5
34968 42	Wire chain, including tire chain, stud-link chain, and welded link ³ ----	22	106.8	(NA)	(D)
34968 51	Barbed and twisted steel wire -----	9	18.0	10	31.8
34968 55	Wire bale ties -----	7	28.3	7	29.5
34968 63	Welded steel wire fabrics, including concrete reinforcing mesh ³ -----	44	140.8	(NA)	(D)
34968 71	Wire garment hangers -----	12	92.9	6	54.6
34968 73	Wire carts, including household, grocery, and industrial -----	27	131.4	20	80.5
34968 75	Steel wire cages -----	42	107.9	33	58.3
34968 81	Wire baskets -----	69	126.5	41	65.9
34968 83	Wire shelving, including oven, refrigerator, closet, and barbecue grills -----	64	396.2	50	245.4
34968 85	Wire racks, including shoe, bottle, display, and point of purchase ---	117	241.7	93	136.4
34968 98	Other wire products, including guards, florists' designs, and paper clips ³ -----	274	904.9	(NA)	(D)
34968 00	Other fabricated ferrous wire products (except springs) not made in wire-drawing plants), n.s.k.-----	(NA)	27.8	(NA)	113.6
34960	Miscellaneous fabricated wire products, n.s.k.-----	(NA)	229.6	(NA)	535.4
34960 00	Miscellaneous fabricated wire products, n.s.k. ⁸ -----	(NA)	153.5	(NA)	439.7
34960 02	Miscellaneous fabricated wire products, n.s.k. ⁹ -----	(NA)	76.1	(NA)	95.7

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)
3497—	METAL FOIL AND LEAF						
	Total -----	(NA)	(X)	2 889.4	(NA)	(X)	2 099.8
34971	Converted unmounted aluminum foil packaging products -----	(NA)	(X)	887.0	(NA)	(X)	707.6
34971 32	Household, institutional, and freezer foil ----- mil lb.---	7	337.1	581.1	10	307.7	508.4
34971 33	Semirigid containers ----- mil lb.---	8	*68.9	177.2			
34971 37	Other unmounted foil flexible packaging products, including gift wrap ----- mil lb.---	12	28.1	128.7	(NA)	96.6	195.5
34971 00	Converted unmounted aluminum foil packaging products, n.s.k.-----	(NA)	(X)	-	(NA)	(X)	3.7
34972	Laminated aluminum foil rolls and sheets for flexible packaging uses -----	(NA)	(X)	1 400.1	(NA)	(X)	908.5
34972 10	Film/foil without paper ----- mil lb.---	34	*184.1	436.7	22	*74.9	133.3
34972 22	Foil/paper: Extrusion laminated foil/paper combinations ----- mil lb.---	22	(S)	275.4	18	165.5	234.3
34972 25	Adhesive or wax laminated foil/paper combinations ----- mil lb.---	25	*212.7	376.1	28	187.7	358.1
34972 28	Foil/film/paper combinations ----- mil lb.---	22	(S)	289.1	15	(S)	84.5
34972 41	Gift wrap (laminated) ----- mil lb.---	5	(S)	19.2	15	(S)	37.4
34972 00	Laminated aluminum foil rolls and sheets for flexible packaging uses, n.s.k.-----	(NA)	(X)	3.6	(NA)	(X)	60.9
34973	Converted foil for nonpackaging applications and foil and leaf -----	(NA)	(X)	588.6	(NA)	(X)	385.3
34973 52	Aluminum: Unmounted or coated, plain or printed ----- mil lb.---	8	**17.4	38.6	10	**32.1	50.1
34973 54	Laminated to other materials ----- mil lb.---	20	(S)	211.8	15	119.6	118.4
34973 58	Other foil, including composition (combination of two metals or more) and metal leaf (including aluminum leaf) ----- mil lb.---	21	*82.2	330.0	17	*54.8	216.8
34973 00	Converted foil for nonpackaging applications and foil and leaf, n.s.k.-----	(NA)	(X)	8.2	(NA)	(X)	-
34970	Metal foil and leaf, n.s.k.-----	(NA)	(X)	13.6	(NA)	(X)	98.4
34970 00	Metal foil and leaf, n.s.k. ⁶ -----	(NA)	(X)	4.5	(NA)	(X)	57.0
34970 02	Metal foil and leaf, n.s.k. ⁷ -----	(NA)	(X)	9.2	(NA)	(X)	41.4

See footnotes at end of table.

34F-28 MISC. FABRICATED METAL PRODUCTS

MANUFACTURES—INDUSTRY SERIES

Table 6a-1. 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)		
3498—	FABRICATED PIPE AND FITTINGS						
	Total	(NA)	2 755.3	(NA)	1 759.5		
34980	Fabricated pipe and pipe fittings made from purchased pipe	(NA)	2 755.3	(NA)	1 759.5		
34980 13	Iron and steel	483	1 952.3	312	1 111.0		
34980 15	Aluminum and aluminum-base alloy	83	87.6	50	40.3		
34980 17	Copper and copper-base alloy	49	89.1	44	40.3		
34980 19	All other nonferrous fabricated pipe and pipe fittings	93	281.8	63	126.2		
34980 00	Fabricated pipe and fittings, n.s.k. ⁸	(NA)	282.2	(NA)	317.7		
34980 02	Fabricated pipe and fittings, n.s.k. ⁹	(NA)	62.3	(NA)	124.0		
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)			
3499—	FABRICATED METAL PRODUCTS, N.E.C.						
	Total	(NA)	(X)	6 544.3	(NA)	(X)	5 702.9
34991	Safes and vaults	(NA)	(X)	163.2	(NA)	(X)	233.8
34991 17	Safes and vaults (fire-resistive and burglary-resistive)	31	(X)	127.7	18	(X)	133.2
34991 41	Safe deposit boxes	6	(S)	12.4	7		18.3
34991 98	All other bank and security vaults and equipment (including bank security lockers, night depositories, etc.)					554.5	
34991 00	Safes and vaults, n.s.k.	12	(X)	22.2	17	(X)	72.7
34992	Collapsible tubes	(NA)	(X)	56.0	(NA)	(X)	94.6
34992 11	Aluminum	14	(X)	46.1	8	(X)	51.1
34992 13	Other, including tin, tin-coated, tin-lead alloy, and lead	6	(X)	8.6	9	(X)	30.8
34992 00	Collapsible tubes, n.s.k.	(NA)	(X)	1.3	(NA)	(X)	12.7
34993	Flat metal strapping	(NA)	(X)	298.5	(NA)	(X)	398.3
34993 00	Flat metal strapping	1,000 tons	(S)	298.5	14	(S)	398.3
34995	Metal ladders	(NA)	(X)	252.2	(NA)	(X)	217.4
34995 11	Step and platform types	39	(X)	122.8	18	(X)	72.9
34995 21	Rung types (single, trestle, extension, sectional, etc.)	22	(X)	118.0	20	(X)	104.5
34995 31	Ladder-type step stools	4	(X)	2.4	13	(X)	6.4
34995 39	Ladder accessories (metal), including levelers, ladder feet, ladder jacks, roof hooks, bucket shelves, etc.	7	(X)	7.2	5	(X)	8.5
34995 00	Metal ladders, n.s.k.	(NA)	(X)	1.8	(NA)	(X)	25.0
34996	Powder metallurgy parts, excluding bearings, gears, and machine cutting tools and all cemented carbide parts	(NA)	(X)	883.6	(NA)	(X)	567.3
34996 11	Aluminum and aluminum-base alloy	12	(S)	30.1	13		57.9
34996 33	Copper and copper-base alloy	33	(S)	59.8	25	(S)	32.6
34996 55	Iron and steel	77	(S)	465.3	65	(S)	235.9
34996 66	Nickel-cobalt-base super alloy materials	11	(S)	24.2	9	(S)	21.7
34996 77	Tungsten metal and tungsten-base alloy	25	**7.2	184.4	10	2.7	80.2
34996 88	Other materials	25	(S)	106.4	15	(S)	105.0
34996 00	Powder metallurgy parts, excluding bearings, gears, and machine cutting tools and all cemented carbide parts, n.s.k.	(NA)	(X)	13.3	(NA)	(X)	33.9
34998	All other fabricated metal products, n.e.c.	(NA)	(X)	3 287.4	(NA)	(X)	2 682.7
34998 11	Permanent magnets, except ceramic permanent magnets	26	(X)	234.6	26	(X)	184.1
34998 19	Fabricated assemblies of railroad frogs, switches, and crossings	8	(X)	68.3	15	(X)	112.5
34998 21	Steel boxes for packaging and shipping	19	(X)	26.3	21	(X)	41.4
34998 25	Steel boxes other than for shipping (ammunition boxes, jewelry cases, etc.)	46	(X)	167.6	46	(X)	108.9
34998 29	Stamped metal wheels for golf carts, lawn mowers, etc., (disc type)	5	(X)	64.3	8	(X)	70.2
34998 31	Metal aerosol valves	3			5	(X)	15.1
34998 39	Metal spools and reels	17	(X)	41.7	19	(X)	61.9
34998 99	Other fabricated metal products, n.e.c., including metal ironing boards, and metal memorial tablets and grave markers	908	(X)	2 566.3	801	(X)	1 964.0
34998 00	All other fabricated metal products, n.e.c., n.s.k.	(NA)	(X)	118.2	(NA)	(X)	124.4
34990	Fabricated metal products, n.e.c., n.s.k.	(NA)	(X)	1 603.5	(NA)	(X)	1 508.6
34990 00	Fabricated metal products, n.e.c., n.s.k. ³	(NA)	(X)	1 300.6	(NA)	(X)	1 115.7
34990 02	Fabricated metal products, n.e.c., n.s.k. ³	(NA)	(X)	302.9	(NA)	(X)	392.9

¹Data reported by all producers, not just those with shipments of \$100,000 or more.

²For 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).

³For 1992, product code is revised. See appendix C, parts 1 and 2 for comparability.

⁴Typically for establishments with 15 employees or more.

⁵Typically for establishments with less than 15 employees.

⁶Typically for establishments with 10 employees or more.

⁷Typically for establishments with less than 10 employees.

⁸Typically for establishments with 5 employees or more.

⁹Typically for establishments with less than 5 employees.

¹⁰Typically for establishments with 20 employees or more.

Table 6a-1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1992 and 1987—Con.

¹¹Typically for establishments with less than 20 employees.
¹²For 1987, product codes are combined to avoid disclosing data for individual companies.

Table 6a-2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 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)
33151	Noninsulated ferrous wire rope, cable, and strand -----	(NA)	1 429.5	(NA)	987.7
34961	Made in wiredrawing plants -----	(NA)	981.6	(NA)	637.9
	Not made in wiredrawing plants -----	(NA)	447.9	(NA)	349.8
	Rope and cable made from steel wire (excluding fabricated wire rope assemblies) -----	(NA)	550.8	(NA)	339.1
33151 13	Made in wiredrawing plants -----	18	455.5	11	239.2
34961 13	Not made in wiredrawing plants -----	44	95.3	39	99.9
	Fabricated wire rope assemblies (including lifting slings) -----	(NA)	143.4	(NA)	78.7
33151 15	Made in wiredrawing plants -----	7	46.4	3	13.6
34961 15	Not made in wiredrawing plants -----	56	97.0	42	65.1
	Wire forms (excluding rope assemblies) and composite rope and cable -----	(NA)	236.4	(NA)	(D)
33151 25	Made in wiredrawing plants -----	4	53.0	(NA)	(D)
34961 52	Not made in wiredrawing plants -----	77	183.4	(NA)	(D)
	Steel wire strand (including strand for prestressed concrete, composite wire strand except ACSR, and guard rail cable) -----	(NA)	498.6	(NA)	(D)
33151 34	Made in wiredrawing plants -----	21	426.4	(NA)	(D)
34961 34	Not made in wiredrawing plants -----	17	72.2	(NA)	(D)
33151 00	Noninsulated ferrous wire rope, cable, and strand, n.s.k. -----	(NA)	.3	(NA)	71.1
34961 00	Made in wiredrawing plants -----	(NA)	.3	(NA)	31.5
	Not made in wiredrawing plants -----	(NA)	—	(NA)	39.6
	Fencing and fence gates -----	(NA)	499.4	(NA)	389.3
33156	Made in wiredrawing plants -----	(NA)	359.0	(NA)	258.7
34966	Not made in wiredrawing plants -----	(NA)	140.3	(NA)	130.6
	Chain link fencing, excluding posts, gates, and fittings (including galvanized and plastics coated) -----	(NA)	138.5	(NA)	136.4
33156 13	Made in wiredrawing plants -----	8	91.2	(NA)	83.4
34966 13	Not made in wiredrawing plants -----	25	47.2	(NA)	53.0
	Woven and welded fencing, excluding posts, gates, and fittings (including galvanized and plastics coated) -----	(NA)	218.4	(NA)	115.6
33156 21	Made in wiredrawing plants -----	11	209.3	10	101.5
34966 21	Not made in wiredrawing plants -----	12	9.1	(NA)	14.1
	Fence gates, posts, and fittings -----	(NA)	123.5	(NA)	86.7
33156 35	Made in wiredrawing plants -----	9	53.7	10	(D)
34966 35	Not made in wiredrawing plants -----	29	69.8	(NA)	(D)
	Ornamental lawn fence, excluding posts, gates, and fittings -----	(NA)	(D)	(NA)	.6
33156 71	Made in wiredrawing plants -----	2	(D)	(NA)	(D)
34966 71	Not made in wiredrawing plants -----	8	11.0	(NA)	(D)
	Fencing and fence gates, n.s.k. -----	(NA)	(D)	(NA)	50.0
33156 00	Made in wiredrawing plants -----	(NA)	(D)	(NA)	42.8
34966 00	Not made in wiredrawing plants -----	(NA)	3.1	(NA)	7.2
	Ferrous wire cloth and other ferrous woven wire products -----	(NA)	285.3	(NA)	182.8
33157 00	Made in wiredrawing plants -----	12	105.7	(NA)	60.4
34964 00	Not made in wiredrawing plants -----	48	179.6	(NA)	122.4
	Other fabricated ferrous wire products, except springs -----	(NA)	2 915.1	(NA)	2 135.6
33159	Made in wiredrawing plants -----	(NA)	591.9	(NA)	644.1
34968	Not made in wiredrawing plants -----	(NA)	2 323.2	(NA)	1 491.5
	Wire chain, including tire chain, stud-link, and welded-link -----	(NA)	(D)	(NA)	(D)
33159 42	Made in wiredrawing plants -----	1	(D)	(NA)	(D)
34968 42	Not made in wiredrawing plants -----	22	106.8	(NA)	(D)
	Barbed and twisted wire -----	(NA)	164.7	(NA)	78.9
33159 51	Made in wiredrawing plants -----	9	146.6	6	47.1
34968 51	Not made in wiredrawing plants -----	9	18.0	10	31.8
	Wire bale ties -----	(NA)	72.2	(NA)	48.0
33159 55	Made in wiredrawing plants -----	10	43.9	6	18.5
34968 55	Not made in wiredrawing plants -----	7	28.3	7	29.5
	Welded steel wire fabrics, including concrete reinforcing mesh -----	(NA)	253.2	(NA)	405.2
33159 63	Made in wiredrawing plants -----	10	112.4	(NA)	(D)
34968 63	Not made in wiredrawing plants -----	44	140.8	(NA)	(D)
	Wire garment hangers -----	(NA)	214.1	(NA)	140.5
33159 71	Made in wiredrawing plants -----	4	121.2	5	85.9
34968 71	Not made in wiredrawing plants -----	12	92.9	6	54.6
	Wire carts, including household, grocery, and industrial -----	(NA)	(D)	(NA)	80.5
33159 73	Made in wiredrawing plants -----	2	(D)	(NA)	—
34968 73	Not made in wiredrawing plants -----	27	131.4	20	80.5
	Steel wire cages -----	(NA)	107.9	(NA)	58.3
33159 75	Made in wiredrawing plants -----	—	—	(NA)	—
34968 75	Not made in wiredrawing plants -----	42	107.9	33	58.3
	Other wire products (guards, baskets, florists' designs, paperclips, kitchenware, wire shelving, wire racks, etc.) -----	(NA)	1 779.0	(NA)	(D)
33159 99	Made in wiredrawing plants -----	19	109.7	14	101.6
	Not made in wiredrawing plants -----	(NA)	1 669.3	167	(D)
34968 81	Wire baskets -----	69	126.5	41	65.9
34968 83	Wire shelving, including oven, refrigerator, closet, and barbecue grills -----	64	396.2	50	245.4
34968 85	Wire racks, including shoe, bottle, display, and point of purchase -----	117	241.7	93	136.4
34968 98	Other wire products, including guards, florists' designs, and paper clips -----	274	904.9	(NA)	(D)

See footnotes at end of table.

34F-30 MISC. FABRICATED METAL PRODUCTS

MANUFACTURES—INDUSTRY SERIES

Table 6a-2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 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)
33159 00	Other fabricated ferrous wire products, except springs—Con.	(NA)	27.8	(NA)	140.7
34968 00	Other fabricated ferrous wire products, except springs, n.s.k. -----	(NA)	—	(NA)	27.1
	Made in wiredrawing plants -----	(NA)	—	(NA)	27.1
	Not made in wiredrawing plants -----	(NA)	27.8	(NA)	113.6
33575 00	Nonferrous wire cloth and other woven wire products-----	(NA)	(D)	(NA)	141.5
34965 00	Made in wiredrawing plants -----	1	(D)	(NA)	26.5
	Not made in wiredrawing plants -----	29	145.8	(NA)	115.0

Note: For qualifications of data, see footnotes on table 6a-1.

¹Data reported by all producers, not just those with shipments of \$100,000 or more.

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	Product class and geographic area	1992 value of product shipments	1987 value of product shipments
34911, GATES, GLOBES, ANGLES, STRAIGHTWAY (Y-TYPE) CHECKS, STOP AND CHECK, CROSS, 3- AND 4-WAY, ETC.,			34915, PLUG VALVES (ALL METALS, PRESSURES, AND TYPES), SUCH AS LUBRICATED, CYLINDRICAL ECCENTRIC, AND SLEEVE-LINED		
United States -----	1 164.1	755.4	United States -----	274.6	212.9
Arizona -----	9.3	(NA)	Ohio -----	61.3	(NA)
California -----	94.3	57.9	Texas -----	79.3	52.6
Illinois -----	31.8	(NA)			
Iowa -----	19.5	(NA)	34916, INDUSTRIAL VALVES, N.E.C.		
Louisiana -----	61.5	20.6	United States -----	641.9	498.6
Massachusetts -----	49.1	56.0	California -----	35.2	29.3
New Jersey -----	20.7	5.2	Illinois -----	48.6	32.3
North Carolina -----	66.4	18.1	Michigan -----	49.5	30.5
Oklahoma -----	41.0	(NA)	Missouri -----	30.6	24.9
Pennsylvania -----	82.9	89.4	North Carolina -----	42.9	44.4
Texas -----	180.6	90.6	Ohio -----	36.4	61.9
			Oklahoma -----	7.9	5.1
34912, VALVES FOR WATER WORKS AND MUNICIPAL EQUIPMENT (IBBW, AWWA, AND UL)			Pennsylvania -----	72.0	65.9
United States -----	546.2	401.2	Texas -----	29.1	43.6
California -----	65.7	25.7			
Oklahoma -----	2.2	(NA)	34917, NUCLEAR VALVES (N-STAMP ONLY)		
Pennsylvania -----	18.8	6.6	United States -----	100.8	86.4
			Illinois -----	19.1	(NA)
34913, BALL VALVES (ALL METALS, PRESSURES, AND TYPES), INCLUDING MANUAL AND POWER-OPERATED, ON/OFF VALVES			Massachusetts -----	25.8	10.6
United States -----	941.5	528.9	Pennsylvania -----	29.6	21.8
Illinois -----	38.9	22.5			
Ohio -----	72.6	(NA)	34918, AUTOMATIC VALVES (REGULATING AND CONTROL TYPE) AND PARTS (EXCEPT NUCLEAR)		
Oklahoma -----	73.3	29.3	United States -----	1 530.8	1 179.9
Pennsylvania -----	24.8	14.4	California -----	234.6	242.3
Texas -----	119.0	20.7	Illinois -----	68.8	65.5
			Indiana -----	38.2	35.1
34914, BUTTERFLY VALVES (ALL METALS, PRESSURES, AND TYPES), INCLUDING MANUAL AND POWER-OPERATED, ON/OFF VALVES			Massachusetts -----	6.9	26.2
United States -----	368.1	195.3	New York -----	26.2	50.6
California -----	28.0	(NA)			
Illinois -----	11.2	(NA)	North Carolina -----	52.0	24.5
New Jersey -----	10.4	(NA)	Ohio -----	35.4	25.9
Ohio -----	30.2	(NA)	Oklahoma -----	22.6	12.7
Oklahoma -----	22.9	(NA)	Pennsylvania -----	91.4	61.5
Pennsylvania -----	14.7	3.7	Texas -----	295.6	140.8
Texas -----	68.5	(NA)	Wisconsin -----	117.6	81.5

See footnotes at end of table.

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	Product class and geographic area	1992 value of product shipments	1987 value of product shipments
34919, SOLENOID-OPERATED VALVES AND PARTS, EXCEPT NUCLEAR AND FLUID POWER TRANSFER			3492J, NONAEROSPACE-TYPE FLARED (METAL) FITTINGS, COUPLINGS FOR, AND ASSEMBLIES OF TUBING USED IN FLUID POWER TRANSFER SYSTEMS		
United States	393.4	317.3	United States	191.3	(NA)
California	5.1	14.9	Michigan	44.8	(NA)
New Jersey	136.7	(NA)	Ohio	90.0	(NA)
3492A, AEROSPACE-TYPE HYDRAULIC FLUID POWER VALVES			3492K, NONAEROSPACE-TYPE FLARELESS FITTINGS AND COUPLINGS (INCLUDING NONMETAL FITTINGS) USED IN FLUID POWER TRANSFER SYSTEMS		
United States	357.4	(NA)	United States	339.9	(NA)
California	193.5	(NA)	Ohio	180.4	(NA)
Connecticut	33.8	(NA)	Wisconsin	7.5	(NA)
New York	88.1	(NA)	3492M, NONAEROSPACE-TYPE HYDRAULIC AND PNEUMATIC FITTINGS AND COUPLINGS FOR HOSE		
3492B, AEROSPACE-TYPE PNEUMATIC FLUID POWER VALVES			United States	408.7	(NA)
United States	108.7	(NA)	Illinois	18.3	(NA)
California	72.4	(NA)	Indiana	7.2	(NA)
New York	3.8	(NA)	Michigan	25.7	(NA)
3492C, NONAEROSPACE-TYPE HYDRAULIC DIRECTIONAL CONTROL VALVES			Minnesota	23.1	(NA)
United States	319.0	(NA)	Ohio	153.1	(NA)
California	10.6	(NA)	3492N, NONAEROSPACE-TYPE HYDRAULIC AND PNEUMATIC ASSEMBLIES OF HOSE		
Illinois	45.7	(NA)	United States	199.1	(NA)
Michigan	3.7	(NA)	Illinois	14.2	(NA)
Nebraska	6.5	(NA)	New Jersey	8.0	(NA)
Ohio	46.8	(NA)	34931, HOT FORMED SPRINGS		
Pennsylvania	14.7	(NA)	United States	246.3	499.7
Wisconsin	39.6	(NA)	California	9.4	7.9
3492D, NONAEROSPACE-TYPE HYDRAULIC VALVES, EXCEPT DIRECTIONAL CONTROL			Illinois	35.5	36.4
United States	277.7	(NA)	Indiana	63.2	70.9
California	9.2	(NA)	Minnesota	3.5	(NA)
Illinois	32.6	(NA)	Pennsylvania	66.7	68.2
Minnesota	34.7	(NA)	Texas	5.2	(NA)
Ohio	37.8	(NA)	34932, COLD FORMED SPRINGS		
Pennsylvania	10.3	(NA)	United States	197.4	151.1
Wisconsin	13.5	(NA)	California	23.1	9.0
3492E, NONAEROSPACE-TYPE PNEUMATIC DIRECTIONAL CONTROL VALVES			Connecticut	47.2	37.1
United States	324.9	(NA)	Illinois	12.9	13.2
California	3.3	(NA)	Indiana	6.8	(NA)
Illinois	4.3	(NA)	Michigan	12.6	13.9
Michigan	133.3	(NA)	Ohio	19.4	25.5
Ohio	14.6	(NA)	Pennsylvania	33.1	29.8
Pennsylvania	19.9	(NA)	Texas	10.9	6.5
3492F, NONAEROSPACE-TYPE PNEUMATIC VALVES, EXCEPT DIRECTIONAL CONTROL			34944, PLUMBING AND HEATING VALVES AND SPECIALTIES, EXCEPT PLUMBERS' BRASS GOODS		
United States	146.2	(NA)	United States	362.5	392.8
Illinois	6.4	(NA)	California	24.9	43.1
Michigan	21.9	(NA)	Illinois	87.5	53.9
New York	4.8	(NA)	New York	6.3	6.0
Ohio	23.4	(NA)	Ohio	13.9	13.3
Texas			Texas	7.7	(NA)
3492G, PARTS FOR FLUID POWER VALVES			34945, METAL FITTINGS, FLANGES, AND UNIONS FOR PIPING SYSTEMS		
United States	137.0	175.6	United States	1 356.5	1 404.3
California	39.1	54.5	Arkansas	48.6	49.4
Illinois	4.4	4.3	California	58.2	97.1
Kansas	2.5	(NA)	Connecticut	23.2	21.4
Michigan	29.1	28.4	Illinois	63.4	76.0
Minnesota	3.4	7.7	Indiana	114.3	99.1
New York	10.0	12.0	Iowa	6.3	(NA)
Ohio	7.4	14.9	Kentucky	13.3	17.5
Wisconsin	5.4	3.7	Louisiana	35.6	34.7
3492H, AEROSPACE-TYPE HYDRAULIC AND PNEUMATIC HOSE OR TUBE END FITTINGS AND ASSEMBLIES			Michigan	38.0	20.4
United States	359.2	292.1	Missouri	26.8	19.5
Arizona	3.3	(NA)	New Hampshire	3.1	(NA)
California	76.7	67.6	Ohio	146.2	161.7
			Oklahoma	16.3	31.7
			Pennsylvania	248.7	244.4
			Texas	134.8	70.9
			Wisconsin	30.6	31.2

See footnotes at end of table.

34F-32 MISC. FABRICATED METAL PRODUCTS

MANUFACTURES—INDUSTRY SERIES

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	Product class and geographic area	1992 value of product shipments	1987 value of product shipments
34952, PRECISION MECHANICAL SPRINGS			34968, OTHER FABRICATED FERROUS WIRE PRODUCTS (EXCEPT SPRINGS) NOT MADE IN WIREDRAWING PLANTS)		
United States	653.5	517.2	United States	2 323.2	1 491.5
Arizona	3.0	(NA)	Alabama	36.7	24.6
California	38.2	35.1	Arkansas	41.5	(NA)
Connecticut	54.1	47.8	California	139.7	132.5
Georgia	26.7	12.1	Connecticut	30.4	14.0
Illinois	102.9	100.2	Florida	131.2	28.2
Indiana	47.3	33.8	Georgia	49.2	51.8
Massachusetts	9.3	18.2	Illinois	238.1	139.2
Michigan	78.8	62.0	Indiana	105.9	59.0
Minnesota	7.7	5.0	Iowa	32.3	(NA)
Missouri	4.1	(NA)	Kansas	3.4	(NA)
New Jersey	5.8	2.5	Kentucky	38.5	28.6
New York	22.7	20.1	Maryland	48.8	35.2
North Carolina	11.1	9.4	Massachusetts	50.3	23.9
Ohio	52.8	48.2	Michigan	103.7	70.0
Oregon	6.6	(NA)	Minnesota	66.5	61.8
Pennsylvania	41.9	16.8	Missouri	199.1	108.1
Texas	34.0	13.1	New Jersey	67.9	49.2
Wisconsin	20.1	8.2	New York	101.5	71.4
			North Carolina	70.9	49.3
34953, OTHER WIRE SPRINGS			Ohio	107.5	65.4
United States	748.7	809.9	Oregon	24.5	16.7
California	29.7	37.8	Pennsylvania	184.8	120.0
Connecticut	5.9	6.6	Rhode Island	20.1	(NA)
Florida	8.3	(NA)	South Carolina	31.5	6.3
Illinois	38.1	37.3	Tennessee	134.8	96.8
Indiana	56.5	74.3	Texas	108.0	41.2
Kentucky	78.3	74.2	Wisconsin	32.9	25.6
Michigan	37.8	45.6			
Minnesota	2.5	(NA)	34971, CONVERTED UNMOUNTED ALUMINUM FOIL PACKAGING PRODUCTS		
New York	2.0	(NA)	United States	887.0	707.6
North Carolina	42.2	62.0	California	14.5	24.2
Ohio	49.6	38.1	Illinois	133.3	(NA)
Pennsylvania	76.1	57.5			
Tennessee	93.5	52.2	34972, LAMINATED ALUMINUM FOIL ROLLS AND SHEETS FOR FLEXIBLE PACKAGING USES		
			United States	1 400.1	908.5
34961, NONINSULATED FERROUS WIRE ROPE, CABLE, AND STRAND (NOT MADE IN WIREDRAWING PLANTS)			California	44.8	39.4
United States	447.9	349.8	Georgia	32.1	(NA)
California	34.6	17.7	Illinois	54.7	48.3
Connecticut	19.2	17.5	New Jersey	63.4	55.5
Illinois	63.7	9.5	North Carolina	277.9	(NA)
Louisiana	5.2	(NA)	Ohio	173.0	176.0
Massachusetts	9.3	(NA)	Pennsylvania	72.4	(NA)
Minnesota	2.6	(NA)	Texas	105.8	7.1
New Jersey	47.4	37.5	Wisconsin	124.6	(NA)
New York	7.6	6.2			
North Carolina	13.4	(NA)	34973, CONVERTED FOIL FOR NONPACKAGING APPLICATIONS AND FOIL AND LEAF		
Ohio	40.3	27.2	United States	588.6	385.3
Pennsylvania	49.9	42.5	California	7.1	28.3
South Carolina	8.1	(NA)	New Jersey	196.6	135.2
Texas	23.8	18.0	New York	40.7	(NA)
Wisconsin	19.8	23.9	Ohio	77.0	(NA)
34964, FERROUS WIRE CLOTH AND OTHER FERROUS WOVEN WIRE PRODUCTS (NOT MADE IN WIREDRAWING PLANTS)			34991, SAFES AND VAULTS		
United States	179.6	122.4	United States	163.2	233.8
California	18.4	5.6	California	30.1	11.7
Michigan	4.4	3.2	Florida	10.1	(NA)
Minnesota	16.3	8.5	Indiana	9.8	(NA)
Ohio	7.0	12.0	Ohio	23.0	105.6
Pennsylvania	14.8	(NA)	Utah	17.7	(NA)
Texas	14.6	12.0			
Wisconsin	8.4	(NA)	34992, COLLAPSIBLE TUBES		
			United States	56.0	94.6
34965, NONFERROUS WIRE CLOTH AND OTHER WOVEN WIRE PRODUCTS (NOT MADE IN WIREDRAWING PLANTS)					
United States	145.8	115.0	34993, FLAT METAL STRAPPING		
New Jersey	13.1	4.3	United States	298.5	398.3
34966, FENCING AND FENCE GATES (NOT MADE IN WIREDRAWING PLANTS)			34995, METAL LADDERS		
United States	140.3	130.6	United States	252.2	217.4
California	12.1	5.8	California	15.9	(NA)
Massachusetts	6.6	(NA)	New York	7.0	10.1
Oklahoma	3.2	(NA)	Texas	2.8	(NA)
Texas	22.9	15.3	Wisconsin	9.4	5.7

See footnotes at end of table.

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	Product class and geographic area	1992 value of product shipments	1987 value of product shipments
34996, POWDER METALLURGY PARTS, EXCLUDING BEARINGS, GEARS, AND MACHINE CUTTING TOOLS AND ALL CEMENTED CARBIDE PARTS			34998, ALL OTHER FABRICATED METAL PRODUCTS, N.E.C.—Con.		
United States	883.6	567.3	Idaho	2.7	(NA)
California	6.8	12.8	Illinois	274.1	223.8
Connecticut	93.8	25.4	Indiana	203.0	144.5
Illinois	52.0	50.4	Iowa	77.4	31.0
Indiana	65.6	40.4	Kansas	5.8	(NA)
Massachusetts	35.8	27.1	Kentucky	142.7	54.8
Michigan	42.4	42.5	Louisiana	7.5	8.3
New Jersey	24.7	37.8	Maryland	9.4	6.8
Ohio	67.0	14.4	Massachusetts	67.5	77.9
Pennsylvania	270.9	186.7	Michigan	231.4	180.8
Tennessee	26.1	(NA)	Minnesota	40.1	37.2
Texas	9.7	(NA)	Missouri	43.0	37.6
Wisconsin	32.5	(NA)	Nevada	3.8	(NA)
			New Jersey	88.5	161.0
34998, ALL OTHER FABRICATED METAL PRODUCTS, N.E.C.			New Mexico	4.2	(NA)
United States	3 287.4	2 682.7	New York	158.6	192.8
Alabama	20.2	64.9	North Carolina	64.1	48.3
Arizona	16.0	7.5	Ohio	207.0	237.1
Arkansas	37.5	(NA)	Oklahoma	65.1	13.5
California	200.7	196.6	Oregon	22.8	(NA)
Colorado	52.0	33.7	Pennsylvania	227.0	235.3
Connecticut	114.9	89.1	Rhode Island	50.4	56.0
Florida	53.5	40.3	South Carolina	16.1	20.2
Georgia	61.9	32.0	Tennessee	103.6	73.8
			Texas	146.5	97.5
			Utah	39.5	8.0
			Virginia	20.2	30.5
			Washington	30.7	11.8
			Wisconsin	182.5	100.7

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

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

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

Product code	Product class	1992	1991 ¹	1990 ¹	1989 ¹	1988 ¹	1987	1982	1977
3491-	Industrial valves	6 127.2	5 525.1	5 338.9	5 003.5	4 652.5	4 224.1	(NA)	(NA)
34911	Gates, globes, angles, straightway (Y-type) checks, stop and check, cross, 3- and 4-way, etc.,	1 164.1	988.0	915.0	830.4	824.6	755.4	(NA)	(NA)
34912	Valves for water works and municipal equipment (IBBW, AWWA, and UL)	546.2	456.9	553.7	485.7	428.0	401.2	(NA)	(NA)
34913	Ball valves (all metals, pressures, and types), including manual and power-operated, on/off valves	941.5	804.8	738.5	630.5	594.6	528.9	(NA)	(NA)
34914	Butterfly valves (all metals, pressures, and types), including manual and power-operated, on/off valves	368.1	339.9	296.2	284.5	236.7	195.3	(NA)	(NA)
34915	Plug valves (all metals, pressures, and types), such as lubricated, cylindrical eccentric, and sleeve-lined	274.6	259.2	230.7	218.2	240.5	212.9	(NA)	(NA)
34916	Industrial valves, n.e.c.	641.9	611.8	676.2	573.6	587.3	498.6	(NA)	(NA)
34917	Nuclear valves (N-stamp only).....	100.8	95.7	62.4	75.5	91.6	86.4	152.0	(NA)
34918	Automatic valves (regulating and control type) and parts (except nuclear).....	1 530.8	1 454.4	1 390.2	1 411.0	1 126.0	1 179.9	1 233.0	696.1
34919	Solenoid-operated valves and parts, except nuclear and fluid power transfer	393.4	350.8	340.5	338.7	317.6	317.3	206.1	114.8
34910	Industrial valves, n.s.k.	165.8	163.6	135.5	155.3	205.7	48.0	(NA)	(NA)
3492-	Fluid power valves and hose fittings	3 283.4	3 476.5	3 584.0	3 374.8	3 095.8	2 730.4	(NA)	(NA)
3492A	Aerospace-type hydraulic fluid power valves	357.4	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
3492B	Aerospace-type pneumatic fluid power valves	108.7	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
3492C	Nonaerospace-type hydraulic directional control valves	319.0	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
3492D	Nonaerospace-type hydraulic valves, except directional control	277.7	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
3492E	Nonaerospace-type pneumatic directional control valves	324.9	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
3492F	Nonaerospace-type pneumatic valves, except directional control	146.2	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
3492G	Parts for fluid power valves	137.0	152.9	238.9	242.5	222.9	175.6	101.0	(NA)
3492H	Aerospace-type hydraulic and pneumatic hose or tube end fittings and assemblies	359.2	408.2	398.4	354.0	321.9	292.1	119.0	(NA)
3492J	Nonaerospace-type flared (metal) fittings, couplings for, and assemblies of tubing used in fluid power transfer systems	191.3	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
3492K	Nonaerospace-type flareless fittings and couplings (including nonmetal fittings) used in fluid power transfer systems	339.9	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
3492M	Nonaerospace-type hydraulic and pneumatic fittings and couplings for hose	408.7	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
3492N	Nonaerospace-type hydraulic and pneumatic assemblies of hose	199.1	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
34920	Fluid power valves and hose fittings, n.s.k.	114.4	106.7	95.5	81.7	96.2	53.8	(NA)	(NA)
3493-	Steel springs, except wire	466.0	683.2	718.8	762.9	725.2	706.7	511.3	571.0
34931	Hot formed springs	246.3	474.4	502.5	493.4	499.7	395.8	454.2	454.2
34932	Cold formed springs	197.4	143.8	144.8	167.4	166.0	151.1	94.8	94.3
34930	Steel springs, except wire, n.s.k.	22.3	65.0	71.5	68.6	65.8	56.0	20.8	22.5

See footnotes at end of table.

34F-34 MISC. FABRICATED METAL PRODUCTS

MANUFACTURES—INDUSTRY SERIES

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

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

Product code	Product class	1992	1991 ¹	1990 ¹	1989 ¹	1988 ¹	1987	1982	1977
3494-	Valves and pipe fittings, n.e.c. -----	1 962.6	2 787.7	2 962.1	2 640.3	2 525.7	2 294.5	(NA)	(NA)
34944	Plumbing and heating valves and specialties, except plumbers' brass goods -----	362.5	485.5	506.0	464.4	412.9	392.8	220.2	206.6
34945	Metal fittings, flanges, and unions for piping systems -----	1 356.5	1 641.5	1 873.9	1 624.2	1 521.0	1 404.3	1 491.2	1 018.8
34940	Valves and pipe fittings, n.e.c., n.s.k. -----	243.7	660.8	582.3	551.7	591.8	497.4	(NA)	(NA)
3495-	Wire springs -----	1 534.0	1 730.4	1 710.7	1 588.1	1 616.0	1 474.7	1 064.2	933.0
34952	Precision mechanical springs -----	653.5	596.8	610.7	589.9	583.2	517.2	480.7	392.0
34953	Other wire springs -----	748.7	971.4	942.3	846.9	889.9	809.9	534.8	500.1
34950	Wire springs, n.s.k. -----	131.7	162.1	157.7	151.3	142.9	147.6	48.7	40.9
3496-	Miscellaneous fabricated wire products -----	3 466.6	2 951.9	2 933.2	2 834.2	3 002.0	2 744.7	2 128.5	1 351.9
34961	Noninsulated ferrous wire rope, cable, and strand (not made in wiredrawing plants) -----	447.9	306.3	327.4	354.3	392.6	349.8	391.4	171.4
34964	Ferrous wire cloth and other ferrous woven wire products (not made in wiredrawing plants) -----	179.6	182.1	212.2	217.1	124.0	122.4	204.4	137.7
34965	Nonferrous wire cloth and other woven wire products (not made in wiredrawing plants) -----	145.8	167.4	151.2	141.3	127.4	115.0	81.6	66.1
34966	Fencing and fence gates (not made in wiredrawing plants) -----	140.3	168.4	171.4	157.8	131.4	130.6	145.1	131.3
34968	Other fabricated ferrous wire products (except springs) not made in wiredrawing plants) -----	2 323.2	1 641.2	1 614.5	1 533.1	1 619.2	1 491.5	1 089.6	626.0
34960	Miscellaneous fabricated wire products, n.s.k. -----	229.6	486.6	456.4	430.7	607.4	535.4	216.5	219.5
3497-	Metal foil and leaf -----	2 889.4	2 615.9	2 621.3	2 673.1	2 562.9	2 099.8	1 758.0	1 070.3
34971	Converted unmounted aluminum foil packaging products -----	887.0	791.4	811.5	909.4	849.6	707.6	654.5	386.7
34972	Laminated aluminum foil rolls and sheets for flexible packaging uses -----	1 400.1	1 187.6	1 196.3	1 193.7	1 165.0	908.5	775.5	496.9
34973	Converted foil for nonpackaging applications and foil and leaf -----	588.6	523.2	512.8	471.9	427.9	385.3	324.4	165.1
34970	Metal foil and leaf, n.s.k. -----	13.6	113.6	100.8	98.1	120.3	98.4	3.6	21.6
3498-	Fabricated pipe and fittings -----	2 755.3	2 146.9	2 176.7	2 046.6	1 879.1	1 759.5	3 035.3	1 698.1
34980	Fabricated pipe and pipe fittings made from purchased pipe -----	2 755.3	2 146.9	2 176.7	2 046.6	1 879.1	1 759.5	3 035.3	1 698.1
3499-	Fabricated metal products, n.e.c. -----	6 544.3	6 861.8	7 074.2	6 801.7	6 302.6	5 702.9	4 210.9	3 390.3
34991	Safes and vaults -----	163.2	185.7	208.7	250.8	225.8	233.8	282.6	181.6
34992	Collapsible tubes -----	56.0	(D)	78.8	80.5	77.8	94.6	84.7	106.5
34993	Flat metal strapping -----	298.5	(D)	286.2	302.2	387.1	398.3	271.6	272.6
34995	Metal ladders -----	252.2	148.3	177.9	216.0	202.8	217.4	152.0	
34996	Powder metallurgy parts, excluding bearings, gears, and machine cutting tools and all cemented carbide parts -----	883.6	707.7	663.8	611.9	613.0	567.3	441.3	2 300.0
34998	All other fabricated metal products, n.e.c. -----	3 287.4	3 617.0	3 526.4	3 424.8	3 130.0	2 682.7	2 277.1	
34990	Fabricated metal products, n.e.c., n.s.k. -----	1 603.5	1 870.5	2 132.4	1 915.5	1 666.0	1 508.6	701.5	529.6

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

Table 7. Materials Consumed by Kind: 1992 and 1987

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

Material code	Material	1992 delivered cost (million dollars)	1987 delivered cost (million dollars)
	INDUSTRY 3491, INDUSTRIAL VALVES		
	Materials, ingredients, containers, and supplies -----	2 281.2	1 555.8
	Fabricated metal products, except forgings:		
345001	Bolts, nuts, screws, washers, rivets, and screw machine products -----	111.8	87.0
346901	Metal stampings -----	45.1	15.3
349005	Valves, fittings, and couplings purchased for further assembly -----	178.4	76.4
340061	Other fabricated metal products -----	114.3	(NA)
	Castings (rough and semifinished):		
332011	Iron -----	174.6	127.4
332045	Steel -----	252.9	160.0
336005	Aluminum and aluminum-base alloy -----	52.3	37.9
336006	Copper and copper-base alloy -----	79.1	50.8
336008	Other nonferrous -----	49.1	17.9
	Forgings:		
346200	Iron and steel -----	84.5	43.8
346300	Nonferrous -----	50.6	(NA)
	Shapes and forms, except castings, forgings, and fabricated metal products:		
	Steel:		
331007	Bars, bar shapes, and plate -----	114.0	(NA)
331022	Sheet and strip -----	29.4	(NA)
331034	Other steel shapes and forms -----	51.8	(NA)
	Copper and copper-base alloy:		
333122	Refinery shapes -----	46.9	37.9
335102	Rod, bar, and mechanical wire, including extruded and/or drawn shapes -----	87.5	42.3
335152	Pipe and tube -----	14.6	2.0
335192	All other copper and copper-base alloy shapes and forms -----	2.4	(NA)
335001	Aluminum and aluminum-base alloy -----	19.7	(D)
335099	Other nonferrous shapes and forms -----	8.9	(NA)
190060	Scrap, including iron, steel, aluminum, and aluminum-base alloy (excluding home scrap) -----	39.0	23.4
362130	Electric motors and generators less than 1 horsepower (less than 746 watts) -----	9.3	11.2
265001	Paperboard containers, boxes, and corrugated paperboard -----	24.9	12.3
	Rubber and plastics hose and belting:		
305202	Hydraulic and pneumatic hose (without fittings), rubber and plastics inner tube type, wire or textile reinforced -----	1.1	(NA)
305204	Other rubber and plastics hose and belting -----	6.2	(NA)
305302	Gaskets (all types), packings, and sealing devices -----	44.4	(NA)

See footnotes at end of table.

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 3491, INDUSTRIAL VALVES—Con.			
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	28.7	26.5
308006	Fabricated plastics products, except gaskets	42.1	20.2
970099	All other materials and components, parts, containers, and supplies	406.8	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k. ²	110.7	189.4
INDUSTRY 3492, FLUID POWER VALVES AND HOSE FITTINGS			
Materials, ingredients, containers, and supplies		1 251.4	825.6
Fabricated metal products, except forgings:			
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	194.3	94.6
346901	Metal stampings	8.6	6.8
349005	Valves, fittings, and couplings purchased for further assembly	112.8	63.7
340061	Other fabricated metal products	57.7	(NA)
Castings (rough and semifinished):			
332011	Iron	27.4	12.5
332045	Steel	14.0	8.4
336005	Aluminum and aluminum-base alloy	32.2	15.1
336006	Copper and copper-base alloy	4.6	4.7
336008	Other nonferrous	29.9	3.2
Forgings:			
346200	Iron and steel	20.3	5.7
346300	Nonferrous	16.5	(NA)
Shapes and forms, except castings, forgings, and fabricated metal products:			
Steel:			
331007	Bars, bar shapes, and plate	100.3	(NA)
331022	Sheet and strip	3.3	(NA)
331034	Other steel shapes and forms	35.4	(NA)
Copper and copper-base alloy:			
333122	Refinery shapes	(D)	(D)
335102	Rod, bar, and mechanical wire, including extruded and/or drawn shapes	65.8	(NA)
335152	Pipe and tube	5.2	(NA)
335192	All other copper and copper-base alloy shapes and forms	(D)	(NA)
335001	Aluminum and aluminum-base alloy	28.6	15.1
335099	Other nonferrous shapes and forms	8.3	(NA)
190060	Scrap, including iron, steel, aluminum, and aluminum-base alloy (excluding home scrap)	2.6	9.7
362130	Electric motors and generators less than 1 horsepower (less than 746 watts)	9.1	2.4
265001	Paperboard containers, boxes, and corrugated paperboard	21.9	6.9
Rubber and plastics hose and belting:			
305202	Hydraulic and pneumatic hose (without fittings), rubber and plastics inner tube type, wire or textile reinforced	104.8	(NA)
305204	Other rubber and plastics hose and belting	.6	(NA)
305302	Gaskets (all types), packings, and sealing devices	10.7	(NA)
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets	5.5	8.5
308006	Fabricated plastics products, except gaskets	8.8	3.7
970099	All other materials and components, parts, containers, and supplies	196.9	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k. ²	107.8	241.3
INDUSTRY 3493, STEEL SPRINGS, EXCEPT WIRE			
Materials, ingredients, containers, and supplies		169.8	159.9
Fabricated metal products, except forgings:			
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	7.3	5.5
340098	Other fabricated metal products	1.4	(NA)
330091	Castings (rough and semifinished)	(D)	(NA)
346000	Forgings	(D)	(NA)
Shapes and forms, except castings, forgings, and fabricated metal products:			
Steel:			
331072	Bars and bar shapes	69.7	58.2
331022	Sheet and strip	13.7	21.9
331027	Wire and wire products	30.9	15.7
331035	All other steel shapes and forms	(D)	9.2
336002	Nonferrous shapes and forms	.6	(NA)
970099	All other materials and components, parts, containers, and supplies	14.9	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k. ²	16.6	28.1
INDUSTRY 3494, VALVES AND PIPE FITTINGS, N.E.C.			
Materials, ingredients, containers, and supplies		793.9	821.3
Fabricated metal products, except forgings:			
345001	Bolts, nuts, screws, washers, rivets, and screw machine products	37.7	19.1
346901	Metal stampings	4.6	2.7
349005	Valves, fittings, and couplings purchased for further assembly	24.7	22.0
340061	Other fabricated metal products	10.9	(NA)
Castings (rough and semifinished):			
332011	Iron	38.7	53.6
332045	Steel	14.3	15.8
336005	Aluminum and aluminum-base alloy	3.8	2.7
336006	Copper and copper-base alloy	18.9	32.4
336008	Other nonferrous	4.7	14.3
Forgings:			
346200	Iron and steel	47.6	23.1
346300	Nonferrous	4.6	(NA)

See footnotes at end of table.

34F-36 MISC. FABRICATED METAL PRODUCTS

MANUFACTURES—INDUSTRY SERIES

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)	
		Quantity ¹	Delivered cost (million dollars)	Quantity ¹	Delivered cost (million dollars)
INDUSTRY 3494, VALVES AND PIPE FITTINGS, N.E.C.—Con.					
Shapes and forms, except castings, forgings, and fabricated metal products:					
Steel:					
331007	Bars, bar shapes, and plate		50.7		(NA)
331022	Sheet and strip		18.4		(NA)
331034	Other steel shapes and forms		54.3		(NA)
Copper and copper-base alloy:					
333122	Refinery shapes		(D)		24.2
335102	Rod, bar, and mechanical wire, including extruded and/or drawn shapes		43.5		45.4
335152	Pipe and tube		21.7		39.8
335192	All other copper and copper-base alloy shapes and forms		33.5		(NA)
335001	Aluminum and aluminum-base alloy		2.3		(D)
335099	Other nonferrous shapes and forms		6.3		(NA)
190060	Scrap, including iron, steel, aluminum, and aluminum-base alloy (excluding home scrap)		(D)		(D)
362130	Electric motors and generators less than 1 horsepower (less than 746 watts)		3.2		2.5
265001	Paperboard containers, boxes, and corrugated paperboard		10.7		8.9
Rubber and plastics hose and belting:					
305202	Hydraulic and pneumatic hose (without fittings), rubber and plastics inner tube type, wire or textile reinforced		(D)		(NA)
305204	Other rubber and plastics hose and belting		(D)		(NA)
305302	Gaskets (all types), packings, and sealing devices		12.3		(NA)
306902	Fabricated rubber products, except tires, tubes, hose, belting, and gaskets		3.9		5.0
308006	Fabricated plastics products, except gaskets		9.7		5.4
970099	All other materials and components, parts, containers, and supplies		134.1		(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k. ²		122.2		162.3
INDUSTRY 3495, WIRE SPRINGS					
Materials, ingredients, containers, and supplies			613.4		604.5
Fabricated metal products, except forgings:					
345001	Bolts, nuts, screws, washers, rivets, and screw machine products		14.5		8.1
340098	Other fabricated metal products		8.9		(NA)
330091	Castings (rough and semifinished)		(D)		(NA)
346000	Forgings		(D)		(NA)
Shapes and forms, except castings, forgings, and fabricated metal products:					
Steel:					
331072	Bars and bar shapes		(D)		4.3
331022	Sheet and strip		52.1		107.8
331027	Wire and wire products		350.0		178.9
331035	All other steel shapes and forms		42.7		43.0
336002	Nonferrous shapes and forms		5.9		(NA)
970099	All other materials and components, parts, containers, and supplies		69.5		(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k. ²		66.2		73.2
INDUSTRY 3496, MISCELLANEOUS FABRICATED WIRE PRODUCTS					
Materials, ingredients, containers, and supplies			1 475.3		1 100.4
Fabricated metal products, except forgings:					
345001	Bolts, nuts, screws, washers, rivets, and screw machine products		13.8		9.5
340098	Other fabricated metal products		44.6		(NA)
346000	Forgings		5.9		(NA)
330091	Castings (rough and semifinished)		5.9		(NA)
Shapes and forms, except castings, forgings, and fabricated metal products:					
Steel:					
331072	Bars and bar shapes		39.3		(NA)
331022	Sheet and strip		61.8		(NA)
331027	Wire and wire products		689.1		(NA)
331035	All other steel shapes and forms		116.1		(NA)
335001	Aluminum and aluminum-base alloy		20.8		16.6
335091	Other nonferrous		19.9		(NA)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes		24.2		11.3
970099	All other materials and components, parts, containers, and supplies		251.7		(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k. ²		182.3		415.9
		1992		1987	
Material code	Material	Quantity ¹	Delivered cost (million dollars)	Quantity ¹	Delivered cost (million dollars)
INDUSTRY 3497, METAL FOIL AND LEAF					
Materials, ingredients, containers, and supplies		(X)	1 672.9	(X)	1 337.3
Fabricated metal products, except forgings:					
349703	Aluminum foil, converted (quantity represents metal content)	**386.8	396.9	58.1	76.8
340095	Other fabricated metal products	(D)	(D)	(NA)	(NA)
330091	Castings (rough and semifinished)	(X)	(D)	(X)	(NA)
346000	Forgings	(X)	-	(X)	(NA)

See footnotes at end of table.

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		1987	
		Quantity ¹	Delivered cost (million dollars)	Quantity ¹	Delivered cost (million dollars)
INDUSTRY 3497, METAL FOIL AND LEAF—Con.					
Shapes and forms, except castings, forgings, and fabricated metal products:					
Aluminum and aluminum-base alloy:					
335303	Sheet and plate	132.2	106.4	99.0	73.4
335304	Plain foil	122.9	216.8		
335008	Other aluminum and aluminum-base alloy shapes and forms			509.7	461.9
335101	Copper and copper-base alloy	6.2	19.8		
331002	Steel	(D)	(D)	38.4	39.2
335099	Other nonferrous shapes and forms	—	—	(NA)	(NA)
Chemicals and allied products:					
289102	Glues and adhesives, including synthetic resin adhesives	(S)	38.2	52.7	28.5
289300	Printing ink	**28.5	51.6	*23.1	34.3
280098	Other chemicals and allied products	(S)	112.7	(X)	(NA)
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes	(X)	217.6	(X)	93.1
260091	Paper and paperboard containers, including shipping sacks and other paper packaging supplies	(X)	230.3	(X)	97.1
970099	All other materials and components, parts, containers, and supplies	(X)	206.7	(X)	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k. ²	(X)	11.8	(X)	79.2
Material code	Material	1992 delivered cost (million dollars)		1987 delivered cost (million dollars)	
INDUSTRY 3498, FABRICATED PIPE AND FITTINGS					
Materials, ingredients, containers, and supplies		1 289.4		814.6	
Fabricated metal products, except forgings:					
349450	Metal fittings, flanges, and unions for piping systems		93.7		22.9
346901	Metal stampings		5.3		11.8
340099	Other fabricated metal products		39.0		(NA)
346000	Forgings		3.7		(D)
Castings (rough and semifinished):					
332001	Iron and steel		39.9		7.4
336005	Aluminum and aluminum-base alloy		1.1		(NA)
336003	Other nonferrous		3.6		(NA)
Shapes and forms, except castings, forgings, and fabricated metal products:					
Steel:					
331072	Bars and bar shapes		25.1		(NA)
331022	Sheet and strip		18.2		(NA)
331082	Plate		15.9		(NA)
331071	Structural shapes		25.5		(NA)
331024	Pipes		441.1		236.1
331030	All other steel shapes and forms		74.4		(NA)
Copper and copper-base alloy:					
335152	Pipe and tube		39.2		21.1
335190	All other shapes and forms		6.2		(D)
Aluminum and aluminum-base alloy:					
335301	Sheet, plate, foil, and welded tubing		1.9		.3
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc.		12.9		13.6
335008	Other aluminum and aluminum-base alloy shapes and forms		6.6		6.9
335099	Other nonferrous shapes and forms		11.1		(NA)
339915	Metal powders9		(D)
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.		12.0		5.2
970099	All other materials and components, parts, containers, and supplies		194.5		(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k. ²		217.7		245.1
INDUSTRY 3499, FABRICATED METAL PRODUCTS, N.E.C.					
Materials, ingredients, containers, and supplies		2 685.7		2 359.8	
Fabricated metal products, except forgings:					
349450	Metal fittings, flanges, and unions for piping systems		5.4		3.5
346901	Metal stampings		42.5		16.3
340099	Other fabricated metal products		84.7		(NA)
346000	Forgings		11.7		(NA)
Castings (rough and semifinished):					
332001	Iron and steel		190.8		22.5
336005	Aluminum and aluminum-base alloy				17.2
336003	Other nonferrous		10.5		4.2
Shapes and forms, except castings, forgings, and fabricated metal products:					
Steel:					
331072	Bars and bar shapes		57.1		(NA)
331022	Sheet and strip		435.8		(NA)
331082	Plate		54.9		(NA)
331071	Structural shapes		24.9		(NA)
331024	Pipes		24.9		19.3
331030	All other steel shapes and forms		111.9		(NA)
Copper and copper-base alloy:					
335152	Pipe and tube		1.4		1.5
335190	All other shapes and forms		14.4		(NA)
Aluminum and aluminum-base alloy:					
335301	Sheet, plate, foil, and welded tubing		33.5		30.8
335405	Extruded shapes, including extruded rod, bar, pipe, tube, etc.		45.1		62.1
335008	Other aluminum and aluminum-base alloy shapes and forms		14.1		13.3
335099	Other nonferrous shapes and forms		8.9		(NA)
339915	Metal powders		144.7		64.4

See footnotes at end of table.

34F-38 MISC. FABRICATED METAL PRODUCTS

MANUFACTURES—INDUSTRY SERIES

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 3499, FABRICATED METAL PRODUCTS, N.E.C.— Con.		
282104	Plastics resins consumed in the form of granules, pellets, powders, liquids, etc.-----	31.8	24.0
970099	All other materials and components, parts, containers, and supplies-----	836.1	(NA)
971000	Materials, ingredients, containers, and supplies, n.s.k. ² -----	500.7	921.3

¹For 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).

²Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

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.

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

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.

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:

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

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.

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

1987		1992		1987		1992		1987		1992	
34211 21		34320 81	34323 25	34433 13	34433 10	34842 15		34842 16			
34211 42	34211 25	34320 82	34322 27	34433 13	34433 15	34842 17		34842 16			
34211 61	34211 80	34320 83	34323 32	34433 17	34433 19	34842 25		34842 16			
34211 98	34211 55	34320 84	34322 30	34433 17	34433 24	34842 27		34842 26			
34211 98	34211 30	34320 85	34323 27	34433 22	34433 26	34842 51		34842 54			
		34320 86	34322 30	34433 22	34433 28	34842 53		34842 54			
34212 00	34212 05	34320 87	34323 27	34433 32	34433 30	34842 56		34842 54			
34212 00	34212 10	34320 89	34323 32	34433 32	34433 34	34842 63		34842 65			
34212 00	34212 16	34320 90	34322 01	34433 36	34433 37	34842 64		34842 74			
		34320 91	34322 03	34433 36	34433 40	34842 67		34842 65			
				34433 38	34433 41	34842 73		34842 74			
34231 32	34231 33										
34231 34	34231 33	34320 92	34322 05	34433 38	34433 44	34916 77		34916 78			
34231 61	34231 97	34320 93	34322 07	34433 39	34433 48	34916 79		34916 78			
34231 98	34231 97	34320 94	34322 12	34433 42	34433 46						
		34320 95	34322 12	34433 42	34433 47	34921		3492C			
34234 11	34234 14	34320 96	34322 15	34433 43	34433 46						
34234 22	34234 14	34320 97	34322 15	34433 43	34433 47	34921		3492D			
		34320 99	34323 32	34433 49	34433 15						
34235 33	34235 41			34433 49	34433 24	34921 00		3492C 00			
34235 39	34235 41	34333 17	34333 21	34433 49	34433 28	34921 00		3492D 00			
		34333 17	34333 35	34433 49	34433 34						
34236 99	34236 85	34333 60	34333 65	34433 50	34433 08	34922		3492E			
34236 99	34236 98	34333 81	34333 65	34433 50	34433 35						
				34433 50	34433 48	34922		3492F			
				34433 50	34433 51	34922 00		3492E 00			
34250 00	34250 41	34334 00	34334 10			34922 00		3492F 00			
		34334 00	34334 22								
34293 15	34293 00	34334 00	34334 30	34434 13	34434 14	34923		3492A			
34293 17	34293 00	34334 00	34334 40	34434 15	34434 14						
		34334 00	34334 62	34434 17	34434 16	34923		3492B			
		34334 00	34334 74	34434 19	34434 16						
34298 32	34298 98					34923 00		3492A 00			
34298 99	34298 98			34435 21	34435 20	34923 00		3492B 00			
				34435 23	34435 20						
34320	34321	34335 31	34335 20	34435 31	34435 35	34924		3492J			
		34335 35	34335 25	34435 33	34435 35						
		34335 44	34335 20	34435 37	34435 42	34924		3492K			
34320	34322	34335 46	34335 25	34435 39	34435 42						
						34924 00		3492J 00			
34320	34323					34924 00		3492K 00			
		34339 10	34339 06	34438 07	34438 08						
34320 01	34321 02	34339 10	34339 08	34438 14	34438 13	34925		3492M			
34320 03	34321 02	34339 10	34339 11	34438 16	34438 13						
34320 05	34321 05	34339 10	34339 13	34438 17	34438 20	34925		3492N			
34320 07	34321 05			34438 19	34438 22						
34320 09	34321 08					34925 00		3492M 00			
34320 10	34321 10					34925 00		3492N 00			
34320 11	34321 08	34411 21	34411 41	34443 11	34443 14						
34320 12	34321 12	34411 22	34411 42	34443 13	34443 14	34926		3492H			
34320 13	34321 13	34411 23	34411 43	34443 21	34443 24	34926 00		3492H 00			
34320 14	34321 13	34411 24	34411 44	34443 23	34443 24						
34320 15	34321 15	34411 26	34411 46			34927		3492G			
		34411 27	34411 47			34927 00		3492G 00			
		34411 61	34411 41								
34320 17	34321 17	34411 62	34411 42	34482 13	34482 18						
34320 18	34321 18	34411 62	34411 42	34482 23	34482 18						
34320 22	34321 20	34411 63	34411 43			34961 22		34961 52			
34320 25	34321 28	34411 64	34411 44			34961 31		34961 34			
34320 26	34321 22	34411 66	34411 46	34626 15	34626 16	34961 33		34961 34			
34320 27	34321 25	34411 67	34411 47	34626 17	34626 16	34961 35		34961 34			
34320 29	34321 30					34961 51		34961 52			
34320 31	34321 32			34627 11	34627 12						
34320 35	34321 34	34412 12	34412 00	34627 13	34627 12	34964 41		34964 00			
34320 39	34321 36	34412 16	34412 00	34627 15	34627 16	34964 43		34964 00			
		34412 17	34412 00	34627 17	34627 16	34964 45		34964 00			
		34412 61	34412 00			34964 51		34964 00			
34320 47	34323 20					34964 53		34964 00			
34320 48	34323 23			34628 11	34628 12	34964 55		34964 00			
34320 49	34322 18			34628 13	34628 12						
34320 52	34322 21	34413 11	34413 16	34628 15	34628 16	34965 17		34965 00			
34320 54	34322 24	34413 41	34413 20	34628 17	34628 16	34965 57		34965 00			
34320 57	34322 33	34413 51	34413 23			34965 65		34965 00			
34320 58	34322 36	34413 55	34413 26								
34320 59	34322 39	34413 57	34413 29	34661 00	34661 05	34966 23		34966 13			
34320 63	34322 45	34413 58	34413 59	34661 00	34661 20	34966 25		34966 13			
34320 67	34322 50	34413 61	34413 16	34661 00	34661 22	34966 27		34966 21			
		34413 71	34413 20			34966 29		34966 21			
34320 69	34322 50	34413 82	34413 29	34662 00	34662 30	34968 41		34968 42			
34320 71	34323 02	34413 83	34413 23	34662 00	34662 32	34968 45		34968 42			
34320 72	34323 05	34413 83	34413 26			34968 46		34968 42			
34320 74	34323 08	34413 83	34413 59			34968 46		34968 42			
34320 75	34323 11			34699 98	34699 51	34968 61		34968 63			
34320 76	34323 14			34699 98	34699 97	34968 65		34968 63			
34320 78	34323 17					34968 77		34968 98			
34320 80	34322 27	34422 23	34422 30			34968 99		34968 98			
		34422 29	34422 30	34790 00	34790 77						

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
3412100	MQ34K, Steel Shipping Drums and Palls	3492E00	MA35N, Fluid Power Products, Including Aerospace
34122	MQ34K, Steel Shipping Drums and Palls	3492F00	MA35N, Fluid Power Products, Including Aerospace
3431010	MQ34E, Plumbing Fixtures	3492G00	MA35N, Fluid Power Products, Including Aerospace
3491800	MA38B, Selected Instruments and Related Products	3492H00	MA35N, Fluid Power Products, Including Aerospace
3491900	MA38B, Selected Instruments and Related Products	3492J00	MA35N, Fluid Power Products, Including Aerospace
3492A00	MA35N, Fluid Power Products, Including Aerospace	3492K00	MA35N, Fluid Power Products, Including Aerospace
3492B00	MA35N, Fluid Power Products, Including Aerospace	3492M00	MA35N, Fluid Power Products, Including Aerospace
3492C00	MA35N, Fluid Power Products, Including Aerospace	3492N00	MA35N, Fluid Power Products, Including Aerospace
3492D00	MA35N, Fluid Power Products, Including Aerospace		

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.