

Manufacturing PMI[®] at 48.4%

December 2022 Manufacturing ISM[®] *Report On Business*[®]

New Orders and Production Contracting

Backlogs Contracting

Supplier Deliveries Faster

Raw Materials Inventories Growing; Customers' Inventories Too Low

Prices Decreasing; Exports and Imports Contracting

(Tempe, Arizona) — Economic activity in the **manufacturing sector contracted in December for the second consecutive month** following a 29-month period of growth, say the nation's supply executives in the latest **Manufacturing ISM[®] *Report On Business*[®]**.

The report was issued today by Timothy R. Fiore, CPSM, C.P.M., Chair of the Institute for Supply Management[®] (ISM[®]) Manufacturing Business Survey Committee:

“The December Manufacturing PMI[®] registered 48.4 percent, 0.6 percentage point lower than the 49 percent recorded in November. Regarding the overall economy, this figure indicates contraction after 30 straight months of expansion. The Manufacturing PMI[®] figure is the lowest since May 2020, when it registered 43.5 percent. The New Orders Index remained in contraction territory at 45.2 percent, 2 percentage points lower than the 47.2 percent recorded in November. The Production Index reading of 48.5 percent is a 3-percentage point decrease compared to November's figure of 51.5 percent. The Prices Index registered 39.4 percent, down 3.6 percentage points compared to the November figure of 43 percent; this is the index's lowest reading since April 2020 (35.3 percent). The Backlog of Orders Index registered 41.4 percent, 1.4 percentage points higher than the November reading of 40 percent. The Employment Index returned to expansion territory (51.4 percent, up 3 percentage points) after contracting in November (48.4 percent). The Supplier Deliveries Index reading of 45.1 percent is 2.1

percentage points lower than the November figure of 47.2 percent; this is the index's lowest reading since March 2009 (43.2 percent). The Inventories Index registered 51.8 percent, 0.9 percentage point higher than the November reading of 50.9 percent. The New Export Orders Index reading of 46.2 percent is down 2.2 percentage points compared to November's figure of 48.4 percent. The Imports Index continued in contraction territory at 45.1 percent, 1.5 percentage points below the November reading of 46.6 percent."

Fiore continues, "The U.S. manufacturing sector again contracted, with the Manufacturing PMI® at its lowest level since the coronavirus pandemic recovery began. With Business Survey Committee panelists reporting softening new order rates over the previous seven months, the December composite index reading reflects companies' slowing their output. **Demand** eased, with the (1) New Orders Index remaining in contraction territory, (2) New Export Orders Index markedly below 50 percent, (3) Customers' Inventories Index in 'just right' territory, and (4) Backlog of Orders Index recovering slightly but still in strong contraction. **Output/Consumption** (measured by the Production and Employment indexes) was neutral, with a combined zero-percentage point impact on the Manufacturing PMI® calculation. The Employment Index moved back into expansion, and the Production Index dropped into contraction territory. Many panelists' companies confirm that they are continuing to manage head counts through a combination of hiring freezes, employee attrition and layoffs. **Inputs** — defined as supplier deliveries, inventories, prices and imports — accommodated future demand growth. The Supplier Deliveries Index indicated faster deliveries, and the Inventories Index expanded at a faster rate as panelists' companies continued to effectively manage the total supply chain inventory. The Prices Index contracted for the third consecutive month and has declined in each reading since March 2022, when it registered 87.1 percent.

"Of the six biggest manufacturing industries, one — Petroleum & Coal Products — registered moderate growth in December. "Manufacturing contracted again in December after expanding for 29 straight months. Panelists' companies continue to judiciously manage hiring. The month-over-month performance of supplier deliveries was the best since March 2009. Average lead time remained 32 percent above previous trough for capital expenditures and 37 percent for purchased materials; both are too high. Managing head counts and total supply chain inventories remain primary goals as the sector closes the year. More attention will be paid to demand as we enter the first quarter to shore up order books for the next six to 12 months," says Fiore.

The two manufacturing industries that reported growth in December are: Primary Metals; and Petroleum & Coal Products. The 13 industries reporting contraction in December, in the following order, are: Wood Products; Fabricated Metal Products;

Chemical Products; Paper Products; Plastics & Rubber Products; Electrical Equipment, Appliances & Components; Furniture & Related Products; Apparel, Leather & Allied Products; Computer & Electronic Products; Machinery; Food, Beverage & Tobacco Products; Transportation Equipment; and Miscellaneous Manufacturing.

WHAT RESPONDENTS ARE SAYING

- “Skilled labor shortages are huge, putting a lot of pressure on existing personnel. Electronic components still a major supply chain issue, particularly if the component you need is not the current hot technology.” [Computer & Electronic Products]
- “Customer demand continues to be depressed. While 2023 pipeline is looking very positive, current demand is significantly down.” [Chemical Products]
- “Orders are really slowing down in the original equipment sector. We haven’t seen a major output decrease because we are still eating away at our back orders.” [Transportation Equipment]
- “Lead times are returning to normal for most of our suppliers, while some of our smaller suppliers are struggling to remain staffed up enough to keep up with orders.” [Food, Beverage & Tobacco Products]
- “The continued uncertainty in the economy has resulted in customers delaying their commitments for capital purchases, which is impacting our fourth quarter sales and lowering our forecast for the first quarter of 2023.” [Machinery]
- “Business is slowing down and forecast to decrease by the end of the first quarter or second quarter.” [Fabricated Metal Products]
- “Trying hard to keep the wheels moving to close out the year strong. The manufacturing plants are nearing their annual outage periods, and some TLC is needed to keep things running.” [Nonmetallic Mineral Products]
- “Finished the year strong, and we are pleased with how the year shaped up.” [Primary Metals]
- “New China technology trade restrictions have impacted our business and plans going forward.” [Electrical Equipment, Appliances & Components]

- “Overall, supply chain conditions have stabilized tremendously since the fourth quarter of 2021. Issues remain, but the list is quite a bit shorter. Customer demand is very strong, and the outlook is positive for 2023. There is large focus on margin recovery after this period of high inflation.” [Miscellaneous Manufacturing]

MANUFACTURING AT A GLANCE
December 2022

Index	Series Index Dec	Series Index Nov	Percentage Point Change	Direction	Rate of Change	Trend* (Months)
Manufacturing PMI®	48.4	49.0	-0.6	Contracting	Faster	2
New Orders	45.2	47.2	-2.0	Contracting	Faster	4
Production	48.5	51.5	-3.0	Contracting	From Growing	1
Employment	51.4	48.4	+3.0	Growing	From Contracting	1
Supplier Deliveries	45.1	47.2	-2.1	Faster	Faster	3
Inventories	51.8	50.9	+0.9	Growing	Faster	17
Customers’ Inventories	48.2	48.7	-0.5	Too Low	Faster	75
Prices	39.4	43.0	-3.6	Decreasing	Faster	3
Backlog of Orders	41.4	40.0	+1.4	Contracting	Slower	3
New Export Orders	46.2	48.4	-2.2	Contracting	Faster	5
Imports	45.1	46.6	-1.5	Contracting	Faster	2
OVERALL ECONOMY				Contracting	From Growing	1
Manufacturing Sector				Contracting	Faster	2

Manufacturing ISM® Report On Business® data is seasonally adjusted for the New Orders, Production, Employment and Inventories indexes.

*Number of months moving in current direction.

COMMODITIES REPORTED UP/DOWN IN PRICE AND IN SHORT SUPPLY

Commodities Up in Price

Copper; Electrical Components (2); Electricity (2); Electronic Components (25); Freight*; Labor — Temporary (4); Semiconductors; and Zinc.

Commodities Down in Price

Aluminum (8); Aluminum Products; Corrugate; Crude Oil; Diesel; Freight* (2); Natural Gas; Ocean Freight (4); Plastic Resins (7); Polyethylene; Polypropylene (5); Solvents; Steel (8); Steel — Cold Rolled; Steel — Hot Rolled (8); Steel — Stainless Steel Products; Steel Bars; and Steel Products (6).

Commodities in Short Supply

Bearings; Electrical Components (27); Electronic Components (25); Hydraulic Components (8); Labor — Temporary; Rubber Based Products (2); Semiconductors (25); Steel Products (2); Tyvek; and Wire Harnesses.

Note: The number of consecutive months the commodity is listed is indicated after each item.

*Indicates both up and down in price.

DECEMBER 2022 MANUFACTURING INDEX SUMMARIES

MANUFACTURING PMI®

The U.S. manufacturing sector contracted in December, as the Manufacturing PMI® registered 48.4 percent, 0.6 percentage point below the reading of 49 percent recorded in November. “This is the second month of contraction and, as predicted, will likely be the norm for the PMI® at least through the first quarter of 2023, with the PMI® expected to be between 48 and 52 percent. Of the five subindexes that directly factor into the Manufacturing PMI®, two (Employment and Inventories) were in growth territory, with both gaining a bit of ground. The PMI® registered its lowest level since May 2020, when the index was 43.5 percent. Of the six biggest manufacturing industries, only Petroleum & Coal Products registered moderate growth in December. The Production Index decreased 3 percentage points, falling into contraction territory. Supply chain congestion continued to ease, indicated by the Supplier Deliveries Index showing faster deliveries. Only two of the 10 subindexes were positive for the period,” says Fiore. A reading above 50 percent indicates that the manufacturing sector is generally expanding; below 50 percent indicates that it is generally contracting.

A Manufacturing PMI® above 48.7 percent, over a period of time, generally indicates an expansion of the overall economy. Therefore, the December Manufacturing PMI® indicates the overall economy contracted in December after 30 consecutive months of expansion following contraction in April and May 2020. “The past relationship between the Manufacturing PMI® and the overall economy indicates that the Manufacturing PMI® for December (48.4 percent) corresponds to a 0.1-percent decrease in real gross domestic product (GDP) on an annualized basis,” says Fiore.

THE LAST 12 MONTHS

Month	Manufacturing PMI®
Dec 2022	48.4
Nov 2022	49.0
Oct 2022	50.2
Sep 2022	50.9
Aug 2022	52.8
Jul 2022	52.8
Month	Manufacturing PMI®
Jun 2022	53.0

Month	Manufacturing PMI®
May 2022	56.1
Apr 2022	55.4
Mar 2022	57.1
Feb 2022	58.6
Jan 2022	57.6

Average for 12 months - 53.5

High - 58.6

Low - 48.4

NEW ORDERS

ISM®'s New Orders Index contracted for the fourth consecutive month in December, registering 45.2 percent, a decrease of 2 percentage points compared to the 47.2 percent reported in November. "Of the six largest manufacturing sectors, only Transportation Equipment reported increased new orders. Price and lead time declines as well as backlog contraction should encourage buyers to reenter the market and sales agents to be more aggressive in seeking new business, but clearly this did not occur in December. Slowing in new order rates to adjust for overordering in 2021 and the first quarter of 2022 has been underway since March of this year," says Fiore. (For more on lead times, see the Buying Policy section of this report.) A New Orders Index above 52.9 percent, over time, is generally consistent with an increase in the Census Bureau's series on manufacturing orders (in constant 2000 dollars).

Of the 18 manufacturing industries, three reported growth in new orders in December: Textile Mills; Primary Metals; and Transportation Equipment. Eleven industries reported a decline in new orders in December, in the following order: Wood Products; Nonmetallic Mineral Products; Fabricated Metal Products; Food, Beverage & Tobacco Products; Chemical Products; Furniture & Related Products; Plastics & Rubber Products; Electrical Equipment, Appliances & Components; Miscellaneous Manufacturing; Computer & Electronic Products; and Machinery.

New Orders	% Higher	% Same	% Lower	Net	Index
Dec 2022	15.8	52.7	31.5	-15.7	45.2
Nov 2022	12.7	62.3	25.0	-12.3	47.2
Oct 2022	18.3	56.4	25.3	-7.0	49.2
Sep 2022	16.0	62.8	21.2	-5.2	47.1

PRODUCTION

The Production Index registered 48.5 percent in December, 3 percentage points lower than the November reading of 51.5 percent, indicating contraction after 30 consecutive months of growth. “Of the top six industries, only two — Transportation Equipment; and Machinery — expanded in December. The Production Index contraction is a strong indicator that backlog reduction is not sufficient to maintain production growth. Additionally, as customers’ inventories have reached ‘about right’ levels, panelists are now concerned about future production potential,” says Fiore. An index above 52.4 percent, over time, is generally consistent with an increase in the Federal Reserve Board’s Industrial Production figures.

The four industries reporting growth in production during the month of December are: Primary Metals; Electrical Equipment, Appliances & Components; Transportation Equipment; and Machinery. The eight industries reporting a decrease in production in December — in the following order — are: Chemical Products; Wood Products; Paper Products; Fabricated Metal Products; Furniture & Related Products; Plastics & Rubber Products; Miscellaneous Manufacturing; and Computer & Electronic Products. Six industries reported no change in production.

Production	% Higher	% Same	% Lower	Net	Index
Dec 2022	17.3	56.2	26.5	-9.2	48.5
Nov 2022	20.2	61.7	18.1	+2.1	51.5
Oct 2022	20.2	62.3	17.5	+2.7	52.3
Sep 2022	17.5	64.3	18.2	-0.7	50.6

EMPLOYMENT

ISM®'s Employment Index registered 51.4 percent in December, 3 percentage points higher than the November reading of 48.4 percent. "The index indicated employment expanded after contracting for one month. Of the six big manufacturing sectors, only two (Petroleum & Coal Products; and Machinery) expanded. Labor management sentiment continued to shift, with a number of panelists' companies reducing employment levels through hiring freezes, attrition — and since November — layoffs. In December, layoffs were mentioned in 11 percent of employment comments, down from 14 percent in November, likely due to the holiday period. Turnover rates improved marginally, recording their lowest level (27 percent of comments) since tracking began in June 2021. For those companies expanding their workforces, comments continue to support an improving hiring environment," says Fiore. An Employment Index above 50.5 percent, over time, is generally consistent with an increase in the Bureau of Labor Statistics (BLS) data on manufacturing employment.

Of 18 manufacturing industries, five reported employment growth in December: Petroleum & Coal Products; Furniture & Related Products; Plastics & Rubber Products; Machinery; and Miscellaneous Manufacturing. The six industries reporting a decrease in employment in December — in the following order — are: Textile Mills; Wood Products; Primary Metals; Electrical Equipment, Appliances & Components; Computer & Electronic Products; and Food, Beverage & Tobacco Products. Seven industries reported no change in employment in December compared to November.

Employment	% Higher	% Same	% Lower	Net	Index
Dec 2022	15.6	67.5	16.9	-1.3	51.4
Nov 2022	12.8	70.6	16.6	-3.8	48.4
Oct 2022	16.0	68.9	15.1	+0.9	50.0
Sep 2022	17.5	60.3	22.2	-4.7	48.7

SUPPLIER DELIVERIES*

The delivery performance of suppliers to manufacturing organizations was faster for a third straight month in December, as the Supplier Deliveries Index registered 45.1 percent, 2.1 percentage points lower than the 47.2 percent reported in November.

This reading indicates the fastest supplier delivery performance in 165 months (March 2009, when the index registered 43.2 percent). Of the top six manufacturing industries, only Food, Beverage & Tobacco Products reported slower deliveries. “In December, 88 percent of panelists reported ‘same’ or ‘faster’ delivery times. Panelists’ comments overwhelmingly confirmed that suppliers performed better in December compared to previous months, continuing an improvement trend that began in May 2022,” says Fiore. A reading below 50 percent indicates faster deliveries, while a reading above 50 percent indicates slower deliveries.

Three of 18 manufacturing industries reported slower supplier deliveries in December: Textile Mills; Miscellaneous Manufacturing; and Food, Beverage & Tobacco Products. The 10 industries reporting faster supplier deliveries in December as compared to November — in the following order — are: Paper Products; Plastics & Rubber Products; Wood Products; Electrical Equipment, Appliances & Components; Fabricated Metal Products; Machinery; Primary Metals; Chemical Products; Computer & Electronic Products; and Transportation Equipment.

Supplier Deliveries	% Slower	% Same	% Faster	Net	Index
Dec 2022	12.3	65.6	22.1	-9.8	45.1
Nov 2022	13.9	66.5	19.6	-5.7	47.2
Oct 2022	11.7	70.2	18.1	-6.4	46.8
Sep 2022	16.8	71.2	12.0	+4.8	52.4

INVENTORIES

The Inventories Index registered 51.8 percent in December, 0.9 percentage point higher than the 50.9 percent reported for November. “Manufacturing inventories expanded at a faster rate compared to November. Of the six big manufacturing industries, two (Food, Beverage & Tobacco Products; and Computer & Electronic Products) increased manufacturing raw material inventories in December. Panelists’ companies continue their efforts to reduce their total supply chain inventories in preparation for a further economic slowdown, indicated by the contraction in new orders, slow expansion in manufacturing inventories and the ‘just right’ level of customers’ inventories,” says Fiore. An Inventories Index greater than 44.4 percent, over time, is generally consistent with expansion in the Bureau of Economic Analysis (BEA) figures on overall manufacturing inventories (in chained 2000 dollars).

Of 18 manufacturing industries, the eight reporting higher inventories in December — in the following order — are: Nonmetallic Mineral Products; Paper Products; Primary Metals; Electrical Equipment, Appliances & Components; Plastics & Rubber Products; Food, Beverage & Tobacco Products; Miscellaneous Manufacturing; and Computer & Electronic Products. The six industries reporting contracting inventories in December — in the following order — are: Apparel, Leather & Allied Products; Fabricated Metal Products; Furniture & Related Products; Chemical Products; Machinery; and Transportation Equipment.

Inventories	% Higher	% Same	% Lower	Net	Index
Dec 2022	20.0	59.5	20.5	-0.5	51.8
Nov 2022	20.9	58.3	20.8	+0.1	50.9
Oct 2022	21.6	63.3	15.1	+6.5	52.5
Sep 2022	23.0	64.9	12.1	+10.9	55.5

CUSTOMERS' INVENTORIES*

ISM®'s Customers' Inventories Index registered 48.2 percent in December, 0.5 percentage point lower than the 48.7 percent reported for November. "Customers' inventory levels are considered 'just right.' The current index level continues to no longer provide positive support to future manufacturing expansion," says Fiore.

Five industries reported customers' inventories as too high in December: Paper Products; Furniture & Related Products; Wood Products; Computer & Electronic Products; and Electrical Equipment, Appliances & Components. The seven industries reporting customers' inventories as too low in December — listed in order — are: Machinery; Chemical Products; Transportation Equipment; Primary Metals; Plastics & Rubber Products; Food, Beverage & Tobacco Products; and Fabricated Metal Products. Six industries reported no change in customers' inventories in December compared to November.

Customers' Inventories	% Reporting	% Too High	% About Right	% Too Low	Net	Index
Dec 2022	78	15.2	66.0	18.8	-3.6	48.2

Customers' Inventories	% Reporting	% Too High	% About Right	% Too Low	Net	Index
Nov 2022	77	20.6	56.2	23.2	-2.6	48.7
Oct 2022	74	13.4	56.3	30.3	-16.9	41.6
Sep 2022	73	13.5	56.1	30.4	-16.9	41.6

PRICES*

The ISM® Prices Index registered 39.4 percent in December, 3.6 percentage points lower compared to the November reading of 43 percent, indicating raw materials prices decreased for the third straight month after a 28-month period in “increasing” territory. This is the index’s lowest level since a reading of 35.3 percent in April 2020. Over the past nine months, the index has decreased 47.7 percentage points, including a combined 26-percentage point plunge in July and August. None of the top six manufacturing industries reported increases in prices in December. “Price declines continue to be driven by relaxation in energy markets, steel, aluminum, chemicals, plastics, corrugate as well as lower freight costs. Notably, 86 percent of respondents reported paying the same or lower prices in December, compared to 87 percent in November, continuing the declining price trend,” says Fiore. A Prices Index above 52.6 percent, over time, is generally consistent with an increase in the Bureau of Labor Statistics (BLS) Producer Price Index for Intermediate Materials.

In December, only one industry reported paying increased prices for raw materials: Apparel, Leather & Allied Products. The 10 industries reporting paying decreased prices for raw materials in December — in the following order — are: Textile Mills; Wood Products; Petroleum & Coal Products; Fabricated Metal Products; Transportation Equipment; Plastics & Rubber Products; Furniture & Related Products; Chemical Products; Food, Beverage & Tobacco Products; and Machinery. Seven industries reported no change in prices in December compared to November.

Prices	% Higher	% Same	% Lower	Net	Index
Dec 2022	13.6	51.6	34.8	-21.2	39.4
Nov 2022	13.1	59.8	27.1	-14.0	43.0
Oct 2022	19.7	53.8	26.5	-6.8	46.6
Sep 2022	31.4	40.5	28.1	+3.3	51.7

BACKLOG OF ORDERS*

ISM®'s Backlog of Orders Index registered 41.4 percent in December, a 1.4-percentage point increase compared to November's reading of 40 percent, indicating order backlogs contracted for the third consecutive month after a 27-month period of expansion. Of the six largest manufacturing sectors, only one — Machinery, which is capital equipment intensive — expanded order backlogs in December. "Backlogs contracted again at a significant rate, as weak new order levels negatively impacted manufacturing books of business. Many panelists indicated that they were working off backlog (overdue orders) as new order rates continue to soften," says Fiore. "The index recorded its lowest level since May 2020, when it registered 38.2 percent."

Two industries reported growth in order backlogs in December: Textile Mills; and Machinery. Twelve industries reported lower backlogs in December, in the following order: Wood Products; Paper Products; Electrical Equipment, Appliances & Components; Plastics & Rubber Products; Fabricated Metal Products; Furniture & Related Products; Food, Beverage & Tobacco Products; Primary Metals; Chemical Products; Miscellaneous Manufacturing; Computer & Electronic Products; and Transportation Equipment.

Backlog of Orders	% Reporting	% Higher	% Same	% Lower	Net	Index
Dec 2022	93	11.5	59.7	28.8	-17.3	41.4
Nov 2022	91	13.7	52.6	33.7	-20.0	40.0
Oct 2022	93	17.4	55.8	26.8	-9.4	45.3
Sep 2022	90	25.5	50.8	23.7	+1.8	50.9

NEW EXPORT ORDERS*

ISM®'s New Export Orders Index registered 46.2 percent in December, 2.2 percentage points lower than the November reading of 48.4 percent. "The New Export Orders Index contracted in December for the fifth consecutive month after 25 straight months in expansion territory. Continued weakness in European economies and China's economic sluggishness continued to constrain new export order activity, which negatively impacts new order rates," says Fiore.

Five industries reported growth in new export orders in December: Wood Products; Apparel, Leather & Allied Products; Plastics & Rubber Products; Electrical Equipment, Appliances & Components; and Miscellaneous Manufacturing. The five industries reporting a decrease in new export orders in December are: Fabricated Metal Products; Chemical Products; Food, Beverage & Tobacco Products; Computer & Electronic Products; and Machinery. Seven industries reported no change in new export orders in December compared to November.

New Export Orders	% Reporting	% Higher	% Same	% Lower	Net	Index
Dec 2022	72	5.6	81.2	13.2	-7.6	46.2
Nov 2022	72	11.2	74.4	14.4	-3.2	48.4
Oct 2022	73	6.7	79.5	13.8	-7.1	46.5
Sep 2022	72	9.4	76.7	13.9	-4.5	47.8

IMPORTS*

ISM®'s Imports Index registered 45.1 percent in December, a decrease of 1.5 percentage points compared to November's figure of 46.6 percent. "The index remained in contraction in December after a recent five-month period of expansion, dropping to its lowest level since May 2020 (41.3 percent). Panelists' comments indicate that the index contraction is a combination of sluggish demand as well as effects from China's zero-COVID policy. At present, there is little indication that the latter issue is affecting U.S. output," says Fiore.

The only industry reporting growth in imports in December is Computer & Electronic Products. Eight industries reported lower volumes of imports in December, in the following order: Paper Products; Wood Products; Primary Metals; Plastics & Rubber Products; Chemical Products; Fabricated Metal Products; Electrical Equipment, Appliances & Components; and Miscellaneous Manufacturing. Nine industries reported no change in imports in December.

Imports	% Reporting	% Higher	% Same	% Lower	Net	Index
Dec 2022	85	7.3	75.6	17.1	-9.8	45.1
Nov 2022	84	10.2	72.8	17.0	-6.8	46.6
Oct 2022	84	9.3	82.9	7.8	+1.5	50.8

Imports	% Reporting	% Higher	% Same	% Lower	Net	Index
Sep 2022	83	15.2	74.8	10.0	+5.2	52.6

*The Supplier Deliveries, Customers' Inventories, Prices, Backlog of Orders, New Export Orders, and Imports indexes do not meet the accepted criteria for seasonal adjustments.

BUYING POLICY

The average commitment lead time for Capital Expenditures in December was 171 days, a decrease of six days compared to November. Average lead time in December for Production Materials was 85 days, an increase of one day. Average lead time for Maintenance, Repair and Operating (MRO) Supplies was 47 days, an increase of three days.

Percent Reporting

Capital Expenditures	Hand-to-Mouth	30 Days	60 Days	90 Days	6 Months	1 Year +	Average Days
Dec 2022	16	6	7	12	33	26	171
Nov 2022	16	4	8	11	33	28	177
Oct 2022	16	6	6	12	30	30	179
Sep 2022	16	5	7	11	32	29	178

Percent Reporting

Production Materials	Hand-to-Mouth	30 Days	60 Days	90 Days	6 Months	1 Year +	Average Days
Dec 2022	11	19	28	25	12	5	85
Nov 2022	8	23	25	27	13	4	84
Oct 2022	8	21	26	25	13	7	93
Sep 2022	9	24	24	22	13	8	94

Percent Reporting

MRO Supplies	Hand-to-Mouth	30 Days	60 Days	90 Days	6 Months	1 Year +	Average Days
Dec 2022	29	33	17	16	4	1	47
Nov 2022	30	34	17	15	3	1	44
Oct 2022	27	36	16	15	5	1	48
Sep 2022	26	35	19	15	4	1	48

About This Report

DO NOT CONFUSE THIS NATIONAL REPORT with the various regional purchasing reports released across the country. The national report's information reflects the entire U.S., while the regional reports contain primarily regional data from their local vicinities. Also, the information in the regional reports is not used in calculating the results of the national report. The information compiled in this report is for the month of December 2022.

The data presented herein is obtained from a survey of manufacturing supply executives based on information they have collected within their respective organizations. ISM[®] makes no representation, other than that stated within this release, regarding the individual company data collection procedures. The data should be compared to all other economic data sources when used in decision-making.

Data and Method of Presentation

The **Manufacturing ISM[®] Report On Business[®]** is based on data compiled from purchasing and supply executives nationwide. The composition of the Manufacturing Business Survey Committee is stratified according to the North American Industry Classification System (NAICS) and each of the following NAICS-based industry's contribution to gross domestic product (GDP): Food, Beverage & Tobacco Products; Textile Mills; Apparel, Leather & Allied Products; Wood Products; Paper Products; Printing & Related Support Activities; Petroleum & Coal Products; Chemical Products; Plastics & Rubber Products; Nonmetallic Mineral Products; Primary Metals; Fabricated Metal Products; Machinery; Computer & Electronic Products; Electrical Equipment, Appliances & Components; Transportation Equipment; Furniture & Related Products; and Miscellaneous Manufacturing (products such as medical equipment and supplies, jewelry, sporting goods, toys and office supplies). The data are weighted based on each industry's contribution to GDP. According to the BEA estimates for 2020 GDP (released December 22, 2021), the six largest manufacturing subsectors are: Computer & Electronic Products; Chemical Products; Transportation Equipment;

Petroleum & Coal Products; Food, Beverage & Tobacco Products; and Machinery. Beginning in February 2018 with January 2018 data, computation of the indexes is accomplished utilizing unrounded numbers.

Survey responses reflect the change, if any, in the current month compared to the previous month. For each of the indicators measured (New Orders, Backlog of Orders, New Export Orders, Imports, Production, Supplier Deliveries, Inventories, Customers' Inventories, Employment and Prices), this report shows the percentage reporting each response, the net difference between the number of responses in the positive economic direction (higher, better and slower for Supplier Deliveries) and the negative economic direction (lower, worse and faster for Supplier Deliveries), and the diffusion index. Responses are raw data and are never changed. The diffusion index includes the percent of positive responses plus one-half of those responding the same (considered positive).

The resulting single index number for those meeting the criteria for seasonal adjustments (Manufacturing PMI[®], New Orders, Production, Employment and Inventories) is then seasonally adjusted to allow for the effects of repetitive intra-year variations resulting primarily from normal differences in weather conditions, various institutional arrangements, and differences attributable to non-moveable holidays. All seasonal adjustment factors are subject annually to relatively minor changes when conditions warrant them. The Manufacturing PMI[®] is a composite index based on the diffusion indexes of five of the indexes with equal weights: New Orders (seasonally adjusted), Production (seasonally adjusted), Employment (seasonally adjusted), Supplier Deliveries, and Inventories (seasonally adjusted).

Diffusion indexes have the properties of leading indicators and are convenient summary measures showing the prevailing direction of change and the scope of change. A Manufacturing PMI[®] reading above 50 percent indicates that the manufacturing economy is generally expanding; below 50 percent indicates that it is generally declining. A Manufacturing PMI[®] above 48.7 percent, over a period of time, indicates that the overall economy, or gross domestic product (GDP), is generally expanding; below 48.7 percent, it is generally declining. The distance from 50 percent or 48.7 percent is indicative of the extent of the expansion or decline. With some of the indicators within this report, ISM[®] has indicated the departure point between expansion and decline of comparable government series, as determined by regression analysis. The **Manufacturing ISM[®] Report On Business[®]** survey is sent out to Manufacturing Business Survey Committee respondents the first part of each month. Respondents are asked to report on information for the current month for U.S. operations only. ISM[®] receives survey responses throughout most of any given month, with the majority of respondents generally waiting until late in the month to

submit responses to give the most accurate picture of current business activity. ISM® then compiles the report for release on the first business day of the following month.

The industries reporting growth, as indicated in the **Manufacturing ISM® Report On Business®** monthly report, are listed in the order of most growth to least growth. For the industries reporting contraction or decreases, those are listed in the order of the highest level of contraction/decrease to the least level of contraction/decrease.

Responses to Buying Policy reflect the percent reporting the current month's lead time, the approximate weighted number of days ahead for which commitments are made for Capital Expenditures; Production Materials; and Maintenance, Repair and Operating (MRO) Supplies, expressed as hand-to-mouth (five days), 30 days, 60 days, 90 days, six months (180 days), a year or more (360 days), and the weighted average number of days. These responses are raw data, never revised, and not seasonally adjusted.

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