

**OHIO DEPARTMENT OF DEVELOPMENT**  
**Office of Strategic Research**

**THE OHIO MACHINERY INDUSTRY**



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**Bob Taft, Governor**

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# TABLE OF CONTENTS

Page

## **Introduction**

1

Introduction and Industry Definition ----- 3

Executive Summary

4

## **Description of Ohio's Machinery Industry** ----- 7

Notable Machinery Industry Manufacturers

9

Recent Expansions and Attractions ----- 15

The Composition of Ohio's Machinery Industry: Gross State Product and Value-Added

17

The Composition of Ohio's Machinery Industry: Employment ----- 19

Industry Wages

21

The Distribution of Industry Establishments in Ohio ----- 23

The Distribution of Industry Employment in Ohio

25

Foreign Investment in Ohio ----- 26

## **Trends**

27

Establishments ----- 29

Employment

31

Gross State Product ----- 33

Value-Added by Group	35
Capital Expenditures by Group -----	37
Imports and Exports of Machinery	39
<b>Overview and Forecasts</b> -----	41
An Overview of the Machinery Industry	42
The Short- and Long-Term Forecasts -----	44
<b>Appendices</b>	46
<b>Detailed Tables</b> -----	47
Table A1: Expansions and Attractions in Ohio's Machinery Industry, 2002-2004	48
Table A2a: Value-Added in the Machinery Industry by Group, 2003 -----	52
Table A2b: Value-Added for Selected Machinery Industries in Ohio and the U.S., 2002	54
Table A2c: Value of Shipments for Selected Machinery Product Classes in Ohio and the U.S., 2002 - - - -	56
Table A3: Machinery Industry Establishments and Employment, Ohio and the U.S.: 2002 Means and Percentages -----	59
Table A4: Machinery Industry Wages and Employment, Ohio and the U.S.: 2002 Means and Percentages	62
Table A5: Establishments and Employment in the Machinery Industry, by County in Ohio: 2002 -----	65
Table A6: Foreign Corporations with Machinery Industry Establishments in Ohio	66
Table A7: Machinery Industry Establishment Trends, Ohio and the U.S.: 1998-2002 -----	69
Table A8: Machinery Industry Employment Trends, Ohio and the U.S.: 1998-2002	70
Table A9: Machinery and Total Gross State Product for Ohio and the U.S., 1997-2003 -----	71
Table A10: Value-Added by Group in the Machinery Industry for Ohio and the U.S., 1997-2003	72
Table A11: Capital Expenditures by Group in the Machinery Industry for Ohio and the U.S., 1997-2003 - - -	73
Table A12: Index Value of the Dollar, and Imports and Exports of Selected Machinery, 1995-2003	74
Table A13: Projections for Machinery Industry Employment by Group, Ohio and the U.S.: 2002-2012 - - - -	75

<b>NAICS Code Definitions and Examples</b>	76
<b>Notes</b> -----	81
<b>Sources and References Cited</b>	83

# INTRODUCTION



## INTRODUCTION AND INDUSTRY DEFINITION

With few exceptions, machinery manufacturers do not make headlines the way steel or motor vehicle producers do. Yet there are good reasons for reporting on the machinery manufacturing industry. One key aspect of the industrial revolution has been the substitution of machines and mechanical power (regardless electricity usage) for human activity in the production of goods. People in the machinery industry make *the machines and equipment used* in making almost everything else. A few examples of almost everything else include lumber, food and beverage products, paper, publications, chemicals, rubber and plastic products, semiconductors, textiles and clothes, primary and fabricated metal products, appliances, product packages and labels, transportation equipment, furniture, dental and medical equipment, jewelry, buttons, gaskets and caskets. Tractors, mowers, combines, compressors, and pumps are machinery industry products. Equipment for moving material in factories, warehouses and ports – as well as people in buildings – is classified in the machinery industry. Machinery for the extraction of oil, natural gas, minerals and metals is included, as is machinery and equipment for constructing buildings, roads, and dams. Dies, jigs, fixtures and some power tools, welders, fans, heaters, ovens, furnaces, air-conditioners and refrigeration equipment – all used in various production processes – are also included. The industry's concentration in Ohio makes any change significant for the state's economy.

The list above only begins to convey the diversity of this major industry. The North American Industry Classification System (NAICS) organizes the 49 individual machinery industries – each making a variety of products – into seven groups. They are *agriculture-construction-mining* (NAICS code 3331), *industrial* (3332), *commercial and service* (3333), *ventilation-heating-air-conditioning (VHAC) and commercial refrigeration* (3334), *metalworking* (3335), *engine-turbine-power transmission* (3336)<sup>1</sup>, and *other general-purpose machinery* (3339). The first three groups listed include machinery and equipment designed for specialized use. The last three groups include general-purpose machinery and equipment. The appendix lists the specific industries and has additional examples of their products.

This report provides an overview of this important industry. Four sections follow this introduction. The first focuses on the industry in Ohio, describing the geographic distribution, and noting various companies' operations and their collective impact on the state's economy. The second charts recent industry trends in Ohio and compares them with the industry in other states and the nation in general. The third reviews of the comments of industry analysts and their forecasts for the future. The last is an appendix containing technical terms and data tables for those seeking a more detailed understanding of the industry. The graphs and many of the discussions herein are based on, and refer to, the appendix tables.

Statistics used in this report come principally from the U.S. Bureaus of the Census and Economic Analysis.

## EXECUTIVE SUMMARY

- The latest available data show 2,075 machinery industry establishments in Ohio employing 84,400 people; those figures represent 7.4 percent of the U.S. industry's establishments and 7.2 percent of its work force.
- Metalworking and other general-purpose machinery (NAICS 3335 and 3339) are the two largest machinery industry groups in Ohio, with over 1,450 establishments and over 46,700 employees between them.
- The greatest concentrations of industry employment in Ohio occur in welding and soldering equipment (333992 – 26.7 percent of the U.S.), metal forming machine tools (333513 – 24.2 percent), rolling mill machinery (333516 – 20.2 percent), and plastics and rubber industry machinery (33322 – 17.5 percent).
- Although they vary by specific industry, the latest available data show the average annual wage for machinery employees in Ohio was \$43,744 – about 102 percent of the national average; wages in Ohio were highest in other engine equipment (333618 – \$63,928) and lowest in air purification equipment (333411 – \$30,496).
- The industry is diffused across the state, with at least one such establishment in 86 counties. The majority of jobs are in Cuyahoga, Montgomery, Hamilton, Summit, Franklin, Lake, Auglaize, Clermont, and Lorain Counties.
- Based on the latest Gross State Product figures, Ohio ranks fourth in the nation in machinery production (333); as judged by the dollar value-added at industry establishments, Ohio led the nation in the production of other general-purpose machinery, and was second in metalworking machinery.
- The latest Economic Census data also show that within the machinery industry, Ohio led the nation in value-added in five specific industries, was second in nine and third in five:
  - #1 Food products, industrial and commercial fans and blowers, metal forming machine tools, rolling mill machinery, and welding and soldering equipment;
  - #2 Lawn and garden equipment, plastic and rubber working, industrial molds, special dies-tools-fixtures-and-jigs, machine tool accessories, mechanical power transmission, conveyors, industrial trucks-tractors-trailers-stackers, and fluid-power pumps and motors;
  - #3 Mining equipment, other metalworking equipment, pumps, packaging, and fluid-power cylinders and actuators.

- 45 companies on Fortune's U.S. 1,000 or Global 500 lists have machinery industry plants in Ohio. Five of these companies have their world headquarters in the state: Cooper Tire & Rubber, Dana, Goodyear Tire & Rubber, Parker Hannifin, and Timken.
- Lincoln Electric Holdings is the largest employer in Ohio's machinery industry with 3,500 people, while Crown Equipment and Illinois Tool Works each employ over 2,000 in the state; 3M, Berkshire-Hathaway, Emerson Electric, Gorman-Rupp, Isuzu, and MTD Products have between 1,000 to 1,999 employees here.
- 79 companies (or their subsidiaries) from 14 foreign nations employed at least 12,300 people in Ohio's machinery industry in 2004; nine of them were on Fortune's Global 500 list.
- Capital expenditures in Ohio by machinery industry companies generally have been slightly less than proportional to value-added originating in Ohio, although the commercial and service and VHAC and commercial refrigeration groups are an exception.
- The Ohio Department of Development recorded 92 major industry investments by 87 companies during the 2002-2004 period totaling \$409 million, the largest of which is the Isuzu-GM partnership's expansion of the diesel engine plant in Moraine.
- While the fortunes of machinery industries more or less follow the fortunes of their customers, analysts have identified a number of trends characterizing many companies regardless of their specific industry: globalization, the increasing importance of foreign trade, consolidation, diversification of product lines, providing greater value for customers, faster rates of innovation, and increasing use of the Internet for e-commerce.
- Analysts are generally optimistic about the immediate future of the machinery industry; however, they disagree about long-term prospects. They predict the number of jobs will increase at a slower-than-average rate; some groups will do better than others.

