

Occupational Profile

Machinists



SKILLS YOU NEED

Basic Skills:

- Reading Comprehension
- Active Listening
- Speaking
- Mathematics
- Critical Thinking
- Active Learning
- Learning Strategies
- Monitoring

Transferable Skills (applicable in other careers):

High level

- Assembling equipment and products
- Following manufacturing blueprints and diagrams
- Following written machining work orders
- Laying out diagrams on materials
- Observing and diagnosing mechanical problems
- Operating and diagnosing mechanical problems
- Operating computer numerically controlled (CNC) machines
- Repairing mechanical objects
- Setting up machines
- Shaping parts by machine
- Using machinist instruments

Workplace Skills:

High level

- Equipment Selection
- Operation and Control
- Operation Monitoring

Medium level

- Complex Problem Solving
- Coordination
- Equipment Maintenance
- Installation
- Judgment and Decision Making
- Quality Control Analysis
- Repairing
- Technology Design
- Time Management
- Troubleshooting

Additional skills for this occupation may be found at <http://www.iowaworkforcedevelopment.gov/career-exploration-resources>

WHAT THEY DO

Sets up and operates a variety of machine tools to produce precision parts and instruments. This includes precision instrument makers who fabricate, modify or repair mechanical instruments. May also fabricate and modify parts to make or repair machine tools or maintain industrial machines, applying knowledge of mechanics, shop mathematics, metal properties, layout, and machining procedures. Belongs to the Manufacturing cluster and production pathway.

IS THIS FOR YOU?

Work Interests are described in the following categories (compatible with Holland's Model) by people who tend to succeed in this career:

- **Realistic** – You are a "doer". You like physical activities and projects. You like to find the answers to problems by doing hands-on work instead of talking about solutions.
- **Conventional** – You are an "organizer". Keeping things neat and organized is important to you. You like working with charts and reports, and work well with power and authority.
- **Investigative** – You are a "thinker". When you have a problem, you like to analyze it and look at different ways to solve it. You like to work by yourself, and you don't like explaining your ideas to other people.

Work Values are aspects of work that are satisfying to you. The following work values are generally associated with this career.

- **Support** – It's very important to you to know the company stands behind its workers and has competent, considerate and fair management.

Aptitudes reflect a person's ability to acquire skills and knowledge. The following aptitudes are important for success in the career:

- **General Learning Ability**
- **Spatial Perception**
- **Form Perception**
- **Manual Dexterity**

Source: <https://secure.ihaveaplaniowa.gov/>

ESTIMATED & PROJECTED EMPLOYMENT

Occupational Title	2012 Estimated Employment	2022 Projected Employment	2012-22 Employment Change	Annual Growth Rate (%)	Total Annual Openings
Total, All Occupations	1,758,205	1,955,480	197,275	1.1	61,665
Production Occupations	161,460	173,485	12,030	0.7	4,695
Machinists	5,570	6,335	765	1.4	205

Source: <http://www.iowaworkforcedevelopment.gov/occupational-projections-0>

2015 WAGE & SALARY (\$)

Occupational Title	Average Wage	Average Salary	Entry Wage	Entry Salary	Experienced Wage	Experienced Salary
Total, All Occupations	19.77	41,122	9.55	19,858	24.88	51,755
Production Occupations	16.34	33,982	11.18	23,259	18.92	39,343
Machinists	18.41	38,301	14.08	29,281	20.58	42,810

Source: <http://www.iowaworkforcedevelopment.gov/occupational-projections-0>

EDUCATION & TRAINING

Education	Work Experience	Job Training
High School Diploma	None	Long-Term On-The-Job

There are many different ways to become a skilled machinist. Many entrants previously have worked as machine setters, operators, or tenders. After high school, some machinists learn entirely on the job, but most acquire their skills in a mix of classroom and on-the-job training. Formal apprenticeship programs, typically sponsored by a union or manufacturer, are an excellent way to learn the job of machinist, but are often hard to get into. Apprentices usually must have a high school diploma, GED, or the equivalent, and most have taken algebra and trigonometry classes. Apprenticeship programs consist of paid shop training and related classroom instruction lasting up to 4 years. A growing number of machinists are learning the trade through 2-year associate degree programs at community or technical colleges. Graduates of these programs still need significant on-the-job experience before they are fully qualified. Approved apprenticeship programs and sponsors in Iowa can be found at http://access.bridges.com/ext/cp/custom_state_data/iowa_apprenticeship/5140410.htm.

Source: <http://www.iowaworkforcedevelopment.gov/occupational-projections-0> and <https://secure.ihaveaplaniowa.gov/>

NATIONAL CAREER READINESS CERTIFICATE (NCRC)

Skill	Median Skill Level
Applied Mathematics	4
Locating Information	4
Reading for Information	4



This ACT-developed credential demonstrates achievement and a certain level of workplace employability skills. The greater the score, the greater the skill level (Bronze = 3, Silver = 4, Gold = 5, Platinum = 6).

Source: <http://www.act.org/workkeys/analysis/occup.html>

PRIMARY INDUSTRY SECTORS

(Where are Machinists Employed?)

- Fabricated Metal Product Mfg
- Machinery Mfg
- Transportation Equipment Mfg
- Merchant Wholesalers, Durable Goods
- Administrative & Support Services
- Computer & Electronic Product Mfg
- Wood Product Mfg
- Self Employed
- Rail Transportation
- Plastics & Rubber Mfg
- Crop Production

Source: <http://www.iowaworkforcedevelopment.gov/occupational-projections-0>

ADDITIONAL SOURCES:

This workforce product was funded by a grant by the U.S. Department of Labor's Employment and Training Administration. The product was created by the recipient and does not necessarily reflect the official position of the U.S. Department of Labor. The Department of Labor makes no guarantees, warranties, or assurances of any kind, express or implied, with respect to such information, including, but not limited to, accuracy of the information or its completeness, timeliness, usefulness, adequacy, continued availability, or ownership. This product is copyrighted by the institution that created it. Internal use by an organization and/or personal use by an individual for non-commercial purposes is permissible. All other uses require the prior authorization of the copyright owner. This publication was produced by the Labor Market and Workforce Information Division of Iowa Workforce Development. Revisions and/or corrections made when necessary. Inquiries may be directed to Brent Paulson at 515.281.3439 or Brent.Paulson@iwd.iowa.gov. Visit www.iowalmi.gov to obtain the latest workforce data and trends including this document. Published 12/2015.