

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.iowaworkforce.org/pubs/careers/cps> .

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	2010 Estimated Employment	2020 Projected Employment	2010-20 Employment Change	Annual Growth Rate (%)	Total Annual Openings
Total All Occupations	1,717,020	1,948,700	231,680	1.3	64,525
Production Occupations	158,740	178,615	19,875	1.3	5,455
Machinists	5,725	6,715	990	1.7	205

Source: <http://iwin.iwd.state.ia.us/pubs/statewide/stateoccproj.pdf>

2012 WAGE & SALARY (\$)

Occupational Title	Average Wage	Average Salary	Entry Wage	Entry Salary	Experienced Wage	Experienced Salary
Total All Occupations	18.90	39,295	9.30	19,341	23.69	49,272
Production Occupations	15.88	33,032	10.74	22,334	18.46	38,380
Machinists	17.43	36,261	12.33	25,633	19.99	41,574

Source: <http://iwin.iwd.state.ia.us/pubs/statewide/stateoccproj.pdf>

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://iwin.iwd.state.ia.us/pubs/statewide/stateoccproj.pdf> 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://iwin.iwd.state.ia.us/pubs/statewide/stateoccproj.pdf>

ADDITIONAL SOURCES:

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