

## Machinists and Machining and Tooling Inspectors



Machinists are primarily responsible for manufacturing metal components and structures, and are well-versed in industrial design and manufacturing software's. As a very technical and detail intensive trade, the role of a machinist necessitates thorough comprehension of blueprints and detailed product specifications, which makes machinists have an inclination for design and mathematical reasoning. Their direct experience with machinery that assembles and shapes metals equips them with a strong foundation suitable for positions in assembly and machine operation.

### Skills

Skills are developed through training and experience, and are the practical proficiencies someone possesses. The following are top key skills motor vehicle assemblers employ in their work:

1. Complex Problem Solving
2. Quality Control Analysis
3. Operation Monitoring & Control
4. Critical Thinking
5. Technology Design

### Tasks

Tasks are the assigned duties that an occupational group performs in their daily work. The following are the tasks motor vehicle assemblers most regularly encounter:

1. Assemble machine tools, parts, or fixtures.
2. Operate metal or plastic forming equipment.
3. Calculate dimensions of workpieces, products, or equipment. Monitor processes for compliance with standards.
4. Study blueprints or other instructions to determine equipment setup requirements.
5. Maintain production or processing equipment.

### Technical Knowledge

Technical Knowledge is the understanding of theory and utility of modern tools in a work environment. The following tools are used by motor vehicle assemblers regularly:

1. Computer-aided design and manufacturing software
2. Enterprise resource planning software
3. Industrial control software
4. Analytical or scientific software
5. Process mapping and design

### Abilities

Abilities refer to the innate faculties that allow workers to carry out tasks and activities. The following are the top abilities that motor vehicle assemblers possess:

1. Deductive Reasoning
2. Manual Dexterity
3. Control Precision
4. Mathematical Reasoning
5. Problem Sensitivity

# Skills Transferability Matrix

FOCAL's Skills Transferability Matrices analyze the transferability of an occupation across a multitude of other occupations on the basis of similarities in **skills, technical knowledge, tasks,** and **abilities** as outlined by the O\*Net database. It aims to show workers how to leverage their skill set in changing occupations, planning a career path, and transitioning to other industries. It also assists policy makers and educators address changing skill sets and areas of opportunity for workforce entrants in developing industries. Employers can also use this tool in reskilling or upskilling workers to circumvent skills shortages, and reduce the hiring and training challenges.

Machinists and Machining and Tooling Inspectors					
Occupations	Skills	Technology	Tasks	Abilities	Total
Furniture and fixture assemblers and inspectors	91%	85%	44%	92%	78%
Electronics assemblers, fabricators, inspectors and testers	89%	85%	49%	84%	77%
Motor vehicle assemblers, inspectors and testers	91%	81%	44%	89%	77%
Boat assemblers and inspectors	86%	81%	44%	90%	75%
Machining tool operators	91%	67%	51%	92%	75%
Metalworking and forging machine operators	92%	59%	54%	91%	74%
Woodworking machine operators	88%	63%	46%	90%	72%
Plastics processing machine operators	90%	37%	44%	89%	65%
Chemical plant machine operators	90%	22%	36%	91%	60%
Tool and die makers	89%	33%	26%	90%	60%
Welders and related machine operators	78%	37%	29%	84%	57%
Contractors and supervisors, machining, metal forming and related occupations	71%	59%	15%	80%	56%
Industrial electricians	81%	41%	5%	88%	54%
Construction millwrights and industrial mechanics	81%	44%	3%	83%	53%

After scanning over 2,600 skills, technical competencies, tasks, and abilities of each of the 500 occupations as defined by the National Occupational Classification (NOC) system, a skills transferability matrix for machinists and machining and tooling inspectors is produced. In the matrix above, a high score is highlighted in green and indicates the high potential transferability of an attribute of an occupation with that of machinists. Lower or no transferability areas are marked in red. Machinists were found to share high overall transferable attributes with many assembly and inspection roles, such as furniture, electronic, motor vehicle and boat assemblers. Machinists also have highly transferable attributes with machine operator occupations including machining tool operators, metalworking and forging machine operators, and woodworking machine operators, suggesting that the nature of work may be similar between the roles. Machinists may also transition into other skilled trades occupations, with some transferability observed between industrial electricians, millwrights, and tool and die makers.

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