



## TORQ Analysis of Welders, Cutters, and Welder Fitters to Sawing Machine Setters, Operators, and Tenders, Wood

### ANALYSIS INPUT

Transfer	Title	O*NET	Filters		
From Title:	Welders, Cutters, and Welder Fitters	51-4121.06	Abilities:	Importance Level: 50	Weight: 1
To Title:	Sawing Machine Setters, Operators, and Tenders, Wood	51-7041.00	Skills:	Importance Level: 69	Weight: 1
Labor Market Area:	Maine Statewide		Knowledge:	Importance Level: 69	Weight: 1

### TORQ RESULTS

Grand TORQ:

85

Ability TORQ		Skills TORQ		Knowledge TORQ	
Level	96	Level	79	Level	82

Gaps To Narrow if Possible				Upgrade These Skills				Knowledge to Add			
Ability	Level	Gap	Imp	Skill	Level	Gap	Imp	Knowledge	Level	Gap	Imp
Control Precision	50	6	72	No Skills Upgrade Required!				No Knowledge Upgrades Required!			
Rate Control	34	4	50								
Problem Sensitivity	42	3	53								
Oral Comprehension	48	2	56								
Multilimb Coordination	46	2	53								

LEVEL and IMPT (IMPORTANCE) refer to the Target Sawing Machine Setters, Operators, and Tenders, Wood. GAP refers to level difference between Welders, Cutters, and Welder Fitters and Sawing Machine Setters, Operators, and Tenders, Wood.

### ASK ANALYSIS

Ability Level Comparison - Abilities with importance scores over 50

Description	Welders, Cutters, and Welder Fitters	Sawing Machine Setters, Operators, and Tenders, Wood	Importance
Arm-Hand Steadiness	51	48	72
Control Precision	44	50	72
Near Vision	50	46	62
Finger Dexterity	42	42	59
Oral Comprehension	46	48	56
Oral Expression	50	48	56
Manual Dexterity	46	42	56
Problem Sensitivity	39	42	53
Multilimb Coordination	44	46	53
Trunk Strength	44	41	53



Deductive Reasoning	39	39	50
Inductive Reasoning	39	39	50
Category Flexibility	46	41	50
Selective Attention	44	41	50
Rate Control	30	34	50
Speech Clarity	35	35	50
Skill Level Comparison - Abilities with importance scores over 69			
Description	Welders, Cutters, and Welder Fitters	Sawing Machine Setters, Operators, and Tenders, Wood	Importance
Knowledge Level Comparison - Knowledge with importance scores over 69			
Description	Welders, Cutters, and Welder Fitters	Sawing Machine Setters, Operators, and Tenders, Wood	Importance

Experience & Education Comparison					
Related Work Experience Comparison			Required Education Level Comparison		
Description	Welders, Cutters, and Welder Fitters	Sawing Machine Setters, Operators, and Tenders, Wood	Description	Welders, Cutters, and Welder Fitters	Sawing Machine Setters, Operators, and Tenders, Wood
10+ years	1%	1%	Doctoral	0%	0%
8-10 years	1%	0%	Professional Degree	0%	0%
6-8 years	0%	0%	Post-Masters Cert	0%	0%
4-6 years	0%	0%	Master's Degree	0%	0%
2-4 years	17%	8%	Post-Bachelor Cert	0%	0%
1-2 years	23%	11%	Bachelors	0%	0%
6-12 months	28%	13%	AA or Equiv	0%	0%
3-6 months	6%	12%	Some College	8%	1%
1-3 months	1%	12%	Post-Secondary Certificate	26%	10%
0-1 month	6%	11%	High School Diploma or GED	26%	40%
None	11%	29%	No HSD or GED	38%	48%
Welders, Cutters, and Welder Fitters			Sawing Machine Setters, Operators, and Tenders, Wood		
Most Common Educational/Training Requirement:					
Long-term on-the-job training			Moderate-term on-the-job training		
Job Zone Comparison					
2 - Job Zone Two: Some Preparation Needed			2 - Job Zone Two: Some Preparation Needed		
Some previous work-related skill, knowledge, or experience may be helpful in these occupations, but usually is not needed. For example, a teller might benefit from experience working directly with the public, but an inexperienced person could still learn to be a teller with little difficulty.			Some previous work-related skill, knowledge, or experience may be helpful in these occupations, but usually is not needed. For example, a teller might benefit from experience working directly with the public, but an inexperienced person could still learn to be a teller with little difficulty.		
These occupations usually require a high school diploma and may require some vocational training or job-related course work. In some cases, an associate's or bachelor's degree could be needed.			These occupations usually require a high school diploma and may require some vocational training or job-related course work. In some cases, an associate's or bachelor's degree could be needed.		
Employees in these occupations need anywhere from a few months to one year of working with experienced employees.			Employees in these occupations need anywhere from a few months to one year of working with experienced employees.		

Tasks	
Welders, Cutters, and Welder Fitters	Sawing Machine Setters, Operators, and Tenders, Wood



## Core Tasks

## Generalized Work Activities:

- Inspecting Equipment, Structures, or Material - Inspecting equipment, structures, or materials to identify the cause of errors or other problems or defects.
- Identifying Objects, Actions, and Events - Identifying information by categorizing, estimating, recognizing differences or similarities, and detecting changes in circumstances or events.
- Getting Information - Observing, receiving, and otherwise obtaining information from all relevant sources.
- Communicating with Supervisors, Peers, or Subordinates - Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person.
- Evaluating Information to Determine Compliance with Standards - Using relevant information and individual judgment to determine whether events or processes comply with laws, regulations, or standards.

## Specific Tasks

## Occupation Specific Tasks:

- Adjust electric current and timing cycles of resistance welding machines to heat metals to bonding temperature.
- Align and clamp workpieces together, using rules, squares, or hand tools, or position items in fixtures, jigs, or vises.
- Brush flux onto joints of workpieces or dip braze rods into flux, to prevent oxidation of metal.
- Clean equipment parts, such as tips of soldering irons, using chemical solutions or cleaning compounds.
- Clean joints of workpieces with wire brushes or by dipping them into cleaning solutions.
- Clean workpieces to remove dirt and excess acid, using chemical solutions, files, wire brushes, or grinders.
- Connect hoses from torches to regulator valves and cylinders of oxygen and specified gas fuels.
- Cut carbon electrodes to specified sizes and shapes, using cutoff saws.
- Dip workpieces into molten solder, or place solder strips between seams and heat seams with irons, to bond items together.
- Examine seams for defects, and rework defective joints or broken parts.
- Grind, cut, buff, or bend edges of workpieces to be joined to ensure snug fit, using power grinders and hand tools.
- Guide torches and rods along joints of workpieces to heat them to brazing temperature, melt braze alloys, and bond workpieces together.
- Heat soldering irons or workpieces to

## Core Tasks

## Generalized Work Activities:

- Controlling Machines and Processes - Using either control mechanisms or direct physical activity to operate machines or processes (not including computers or vehicles).
- Handling and Moving Objects - Using hands and arms in handling, installing, positioning, and moving materials, and manipulating things.
- Inspecting Equipment, Structures, or Material - Inspecting equipment, structures, or materials to identify the cause of errors or other problems or defects.
- Performing General Physical Activities - Performing physical activities that require considerable use of your arms and legs and moving your whole body, such as climbing, lifting, balancing, walking, stooping, and handling of materials.
- Monitor Processes, Materials, or Surroundings - Monitoring and reviewing information from materials, events, or the environment, to detect or assess problems.

## Specific Tasks

## Occupation Specific Tasks:

- Adjust bolts, clamps, stops, guides, and table angles and heights, using hand tools.
- Adjust saw blades, using wrenches and rulers, or by turning handwheels or pressing pedals, levers, or panel buttons.
- Clear machine jams, using hand tools.
- Count, sort, and stack finished workpieces.
- Cut grooves, bevels, and miters, saw curved or irregular designs, and sever or shape metals, according to specifications or work orders.
- Dispose of waste material after completing work assignments.
- Examine blueprints, drawings, work orders, or patterns to determine equipment set-up and selection details, procedures to be used, and dimensions of final products.
- Examine logs or lumber in order to plan the best cuts.
- Guide workpieces against saws, saw over workpieces by hand, or operate automatic feeding devices to guide cuts.
- Inspect and measure workpieces to mark for cuts and to verify the accuracy of cuts, using rulers, squares, or caliper rules.
- Inspect stock for imperfections and to estimate grades or qualities of stock or workpieces.
- Lubricate and clean machines, using wrenches, grease guns, and solvents.
- Measure and mark stock for cuts.
- Monitor sawing machines, adjusting speed and tension and clearing jams to ensure proper operation.



specified temperatures for soldering, using gas flames or electric current.

- Melt and apply solder along adjoining edges of workpieces to solder joints, using soldering irons, gas torches, or electric-ultrasonic equipment.
- Melt and apply solder to fill holes, indentations, and seams of fabricated metal products, using soldering equipment.
- Melt and separate brazed or soldered joints to remove and straighten damaged or misaligned components, using hand torches, irons or furnaces.
- Place solder bars into containers, and turn knobs to specified positions to melt solder and regulate its temperature.
- Remove workpieces from fixtures, using tongs, and cool workpieces, using air or water.
- Remove workpieces from molten solder and hold parts together until color indicates that solder has set.
- Select torch tips, flux, and brazing alloys from data charts or work orders.
- Smooth soldered areas with alternate strokes of paddles and torches, leaving soldered sections slightly higher than surrounding areas for later filing.
- Sweat together workpieces coated with solder.
- Turn dials to set intensity and duration of ultrasonic impulses, according to work order specifications.
- Turn valves to start flow of gases, and light flames and adjust valves to obtain desired colors and sizes of flames.

#### Detailed Tasks

##### Detailed Work Activities:

- adjust welding equipment
- apply cleaning solvents
- apply flux to workpiece before soldering or brazing
- braze metal parts or components together
- clean or degrease weld, or parts to be welded or soldered
- examine products or work to verify conformance to specifications
- fabricate, assemble, or disassemble manufactured products by hand
- file, sand, grind, or polish metal or plastic objects
- identify properties of metals for repair or fabrication activities
- load or unload material or workpiece into machinery
- monitor the quantity of assembly output
- move or fit heavy objects
- perform safety inspections in industrial, manufacturing or repair setting

- Mount and bolt sawing blades or attachments to machine shafts.
- Operate panelboards of saw and conveyor systems to move stock through processes, and to cut stock to specified dimensions.
- Position and clamp stock on tables, conveyors, or carriages, using hoists, guides, stops, dogs, wedges, and wrenches.
- Pull tables back against stops, and depress pedals to advance cutterheads that shape stock ends.
- Select saw blades, types and grades of stock, and cutting procedures to be used, according to work orders or supervisors' instructions.
- Set up, operate, or tend saws and machines that cut or trim wood to specified dimensions, such as circular saws, band saws, multiple-blade sawing machines, scroll saws, ripsaws, and crozer machines.
- Sharpen blades or replace defective or worn blades and bands, using hand tools.
- Trim lumber to straighten rough edges and remove defects, using circular saws.
- Undamp and remove finished workpieces from tables.
- Unload and roll logs from trucks to sawmill decks or to carriages, or move logs in ponds, using pike poles.

#### Detailed Tasks

##### Detailed Work Activities:

- adjust production equipment/machinery setup
- clean equipment or machinery
- examine products or work to verify conformance to specifications
- fell or buck trees
- grade, classify, or sort products according to specifications
- inspect machinery or equipment to determine adjustments or repairs needed
- install equipment or attachments on machinery or related structures
- load or unload material or workpiece into machinery
- load, unload, or stack containers, materials, or products
- maintain consistent production quality
- measure, weigh, or count products or materials
- move or fit heavy objects
- operate hoist, winch, or hydraulic boom
- operate woodworking equipment/machinery
- read blueprints
- read specifications
- read technical drawings
- read work order, instructions, formulas, or processing charts
- recognize wood species characteristics



- position, clamp or assemble workpiece prior to welding
- preheat metal before welding, brazing, or soldering
- read blueprints
- read production layouts
- read technical drawings
- read work order, instructions, formulas, or processing charts
- sharpen metal objects
- solder metal parts or components together
- understand technical operating, service or repair manuals
- use acetylene welding/cutting torch
- use braze-welding equipment
- use hand or power tools
- use soldering equipment

#### Technology - Examples

##### Analytical or scientific software

- Scientific Software Group Filter Drain FD

##### Calendar and scheduling software

- OmniFleet Equipment Maintenance Management

##### Computer aided design CAD software

- EZ Pipe software

##### Project management software

- Recordkeeping software

#### Tools - Examples

- Wrenches
- Anvils
- Bandsaws
- Slitters
- Motorized cutting torches
- Calipers
- Desktop computers
- Underwater electrode holders
- Files
- Gas flow measurement instruments
- Forklifts
- Current converters
- Brazing equipment
- Goggles

- set up production equipment or machinery
- sort manufacturing materials or products
- understand technical operating, service or repair manuals
- use chain saws
- use fire suppression equipment
- use hand or power tools
- use precision measuring tools or equipment

#### Technology - Examples



- Grinding machinery
- Hand chipping hammers
- Clamps
- Temperature measurement instruments
- Electric overhead hoists
- Hydraulic presses
- Impact wrenches
- Hydraulic jacks
- Ladders
- Laser printers
- Laser welders
- Lathes
- Levels
- Light trucks
- Hydraulic truck lifts
- Metal inert gas MIG welders
- Metal markers
- Punches
- Computerized numerical control CNC programmable welding robot controllers
- Micrometers
- Milling machines
- Nibblers
- Personal computers
- Pipe cutters
- Plasma welders
- Air drills
- Air chisels
- Air scalers
- Buffers
- Power chippers
- Power drills
- Power grinders



- Cutoff saws
- Steamers
- Waterproof gloves
- Angle finders
- Pinchbars
- Comealongs
- Ratchets
- Self-contained breathing equipment
- Respirator hose masks
- Welding lenses
- Scaffolding
- Scribes
- Shears
- Socket sets
- Soldering irons
- Wire feed rate measurement instruments
- Squares
- Straightedges
- Metal benders
- Dies
- Fillet weld gauges
- Electric pipe threaders
- Hand pipe threaders
- Tungsten inert gas TIG welding equipment
- Two way radios
- Ultrasonic welding equipment
- Arc voltage measurement instruments
- Arc welders
- Underwater electrodes
- Direct current DC sources
- Face shields
- Welding tips



- Welding robots
- Rod ovens
- Electrode wires
- Dive suits
- Winches
- Power wire brushes
- Wire cutters
- Overhead cranes
- Brakes

### Labor Market Comparison

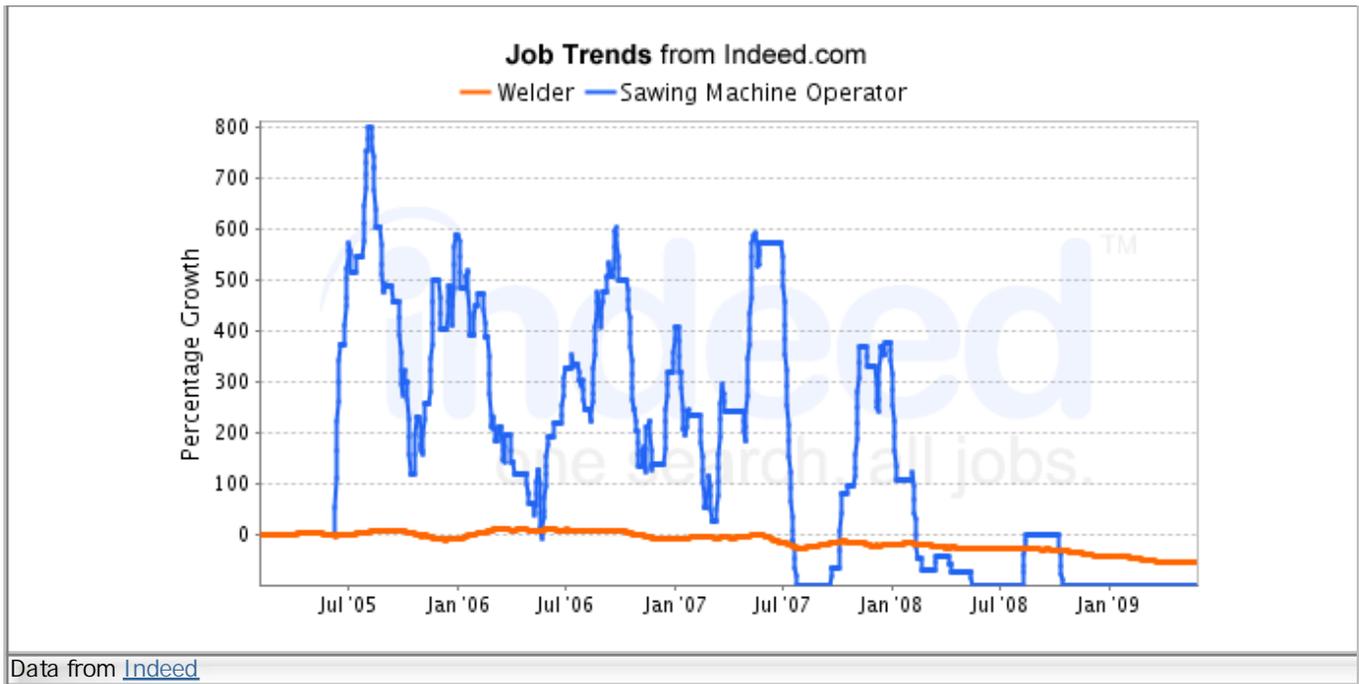
Maine Department of Labor.

Description	Welders, Cutters, and Welder Fitters	Sawing Machine Setters, Operators, and Tenders, Wood	Difference
Median Wage	\$ 38,030	\$ 24,790	\$( 13,240)
10th Percentile Wage	\$ 22,680	\$ 18,890	\$( 3,790)
25th Percentile Wage	N/A	N/A	N/A
75th Percentile Wage	\$ 46,190	\$ 29,970	\$( 16,220)
90th Percentile Wage	\$ 50,780	\$ 35,380	\$( 15,400)
Mean Wage	\$ 38,260	\$ 25,920	\$( 12,340)
Total Employment - 2563	1,610	700	-910
Employment Base - 2006	1,691	765	-926
Projected Employment - 2572	1,816	706	-1,110
Projected Job Growth - 2006-2572	7.4 %	-7.7 %	-15.1 %
Projected Annual Openings - 2006-2572	49	15	-34
Special			

Special Occupations:

### National Job Posting Trends

Trend for Welders, Cutters, and Welder Fitters and Sawing Machine Setters, Operators, and Tenders, Wood



## Programs

### Related Programs

Cabinet Maker and Millworker

Cabinetmaking and Millwork/Millwright. A program that prepares individuals to apply technical knowledge and skills to set up, operate and repair industrial woodworking machinery, and to use such machinery to design and fabricate wooden components and complete articles.

No information on schools for the program

## Maine Statewide Promotion Opportunities for Welders, Cutters, and Welder Fitters

O*NET Code	Title	Grand TORQ	Job Zone	Employment	Median Wage	Difference	Growth	Annual Job Openings	Special
51-4121.06	Welders, Cutters, and Welder Fitters	100	2	1,610	\$38,030.00	\$0.00	7%	49	
51-4192.00	Lay-Out Workers, Metal and Plastic	85	2	180	\$43,870.00	\$5,840.00	-24%	3	
49-9044.00	Millwrights	81	3	830	\$41,280.00	\$3,250.00	-12%	11	
51-4121.07	Solderers and Brazers	80	2	1,610	\$38,030.00	\$0.00	7%	49	
51-4111.00	Tool and Die Makers	80	3	160	\$51,670.00	\$13,640.00	-11%	2	
51-9196.00	Paper Goods Machine Setters, Operators, and Tenders	79	2	910	\$38,230.00	\$200.00	-26%	23	
47-2011.00	Boilermakers	77	4	60	\$39,260.00	\$1,230.00	12%	3	
51-4041.00	Machinists	77	3	1,860	\$41,560.00	\$3,530.00	4%	35	



47-2082.00	Tapers	76	2	70	\$39,910.00	\$1,880.00	5%	3
49-9096.00	Riggers	76	3	250	\$39,140.00	\$1,110.00	-12%	2
47-2021.00	Brickmasons and Blockmasons	74	2	270	\$38,960.00	\$930.00	6%	10
49-9012.00	Control and Valve Installers and Repairers, Except Mechanical Door	74	3	170	\$47,860.00	\$9,830.00	-9%	3
49-9041.00	Industrial Machinery Mechanics	74	3	990	\$39,370.00	\$1,340.00	7%	25
51-4011.00	Computer-Controlled Machine Tool Operators, Metal and Plastic	73	2	720	\$40,490.00	\$2,460.00	6%	12
49-2094.00	Electrical and Electronics Repairers, Commercial and Industrial Equipment	73	3	440	\$49,450.00	\$11,420.00	-19%	15

Special Occupations:

### Top Industries for Sawing Machine Setters, Operators, and Tenders, Wood

Industry	NAICS	% of Industry	Employment	Projected Employment	% Change
Other wood product manufacturing	321900	26.55%	17,269	17,901	3.66%
Sawmills and wood preservation	321100	25.90%	16,845	14,856	-11.81%
Veneer, plywood, and engineered wood product manufacturing	321200	12.25%	7,969	9,546	19.78%
Self-employed workers, primary job	000601	7.11%	4,624	5,419	17.19%
Wood kitchen cabinet and countertop manufacturing	337110	5.97%	3,881	4,726	21.79%
Household and institutional furniture manufacturing	337120	5.22%	3,395	2,842	-16.30%
Office furniture (including fixtures) manufacturing	337200	3.32%	2,159	2,233	3.43%
Lumber and other construction materials merchant wholesalers	423300	2.03%	1,317	1,664	26.35%
Building material and supplies dealers	444100	1.42%	922	1,296	40.57%
Employment services	561300	1.09%	708	985	39.22%
Self-employed workers, secondary job	000602	0.90%	584	640	9.51%
Motor vehicle parts manufacturing	336300	0.25%	163	143	-12.42%
Motor vehicle body and trailer manufacturing	336200	0.24%	157	169	7.63%
Management of companies and enterprises	551100	0.12%	80	102	26.80%

### Top Industries for Welders, Cutters, and Welder Fitters



Industry	NAICS	% of Industry	Employment	Projected Employment	% Change
Architectural and structural metals manufacturing	332300	11.33%	46,347	52,658	13.62%
Agriculture, construction, and mining machinery manufacturing	333100	6.36%	26,009	25,834	-0.67%
Self-employed workers, primary job	000601	5.26%	21,505	24,372	13.33%
Motor vehicle body and trailer manufacturing	336200	5.12%	20,924	21,779	4.09%
Commercial and industrial machinery and equipment (except automotive and electronic) repair and maintenance	811300	4.38%	17,916	20,168	12.57%
Other general purpose machinery manufacturing	333900	3.83%	15,672	15,050	-3.97%
Boiler, tank, and shipping container manufacturing	332400	3.10%	12,686	12,161	-4.14%
Motor vehicle parts manufacturing	336300	3.03%	12,410	10,511	-15.31%
Machine shops	332710	3.03%	12,381	10,895	-12.00%
Other fabricated metal product manufacturing	332900	2.73%	11,163	10,522	-5.74%
Employment services	561300	2.58%	10,544	14,196	34.64%
Ship and boat building	336600	2.51%	10,285	12,246	19.07%
Ventilation, heating, air-conditioning, and commercial refrigeration equipment manufacturing	333400	2.39%	9,762	9,553	-2.14%
Nonresidential building construction	236200	2.03%	8,323	9,921	19.20%
Industrial machinery manufacturing	333200	1.31%	5,341	4,655	-12.85%



# TORQ Analysis of Welders, Cutters, and Welder Fitters to Coil Winders, Tapers, and Finishers

ANALYSIS INPUT					
Transfer	Title	O*NET	Filters		
From Title:	Welders, Cutters, and Welder Fitters	51-4121.06	Abilities:	Importance Level: 50	Weight: 1
To Title:	Coil Winders, Tapers, and Finishers	51-2021.00	Skills:	Importance Level: 69	Weight: 1
Labor Market Area:	Maine Statewide		Knowledge:	Importance Level: 69	Weight: 1

TORQ RESULTS											
Grand TORQ:					84						
Ability TORQ		Skills TORQ		Knowledge TORQ							
Level		96	Level		80						
Level			Level		76						
Gaps To Narrow if Possible		Upgrade These Skills		Knowledge to Add							
Ability	Level	Gap	Impt	Skill	Level	Gap	Impt	Knowledge	Level	Gap	Impt
Finger Dexterity	44	2	62	No Skills Upgrade Required!				No Knowledge Upgrades Required!			
<p>LEVEL and IMPT (IMPORTANCE) refer to the Target Coil Winders, Tapers, and Finishers. GAP refers to level difference between Welders, Cutters, and Welder Fitters and Coil Winders, Tapers, and Finishers.</p>											

ASK ANALYSIS			
Ability Level Comparison - Abilities with importance scores over 50			
Description	Welders, Cutters, and Welder Fitters	Coil Winders, Tapers, and Finishers	Importance
Arm-Hand Steadiness	51	44	68
Finger Dexterity	42	44	62
Manual Dexterity	46	42	59
Control Precision	44	44	59
Near Vision	50	44	59
Oral Comprehension	46	42	53
Oral Expression	50	44	50
Skill Level Comparison - Abilities with importance scores over 69			
Description	Welders, Cutters, and Welder Fitters	Coil Winders, Tapers, and Finishers	Importance
Knowledge Level Comparison - Knowledge with importance scores over 69			
Description	Welders, Cutters, and Welder Fitters	Coil Winders, Tapers, and Finishers	Importance

**Experience & Education Comparison**

Related Work Experience Comparison			Required Education Level Comparison		
Description	Welders, Cutters, and Welder Fitters	Coil Winders, Tapers, and Finishers	Description	Welders, Cutters, and Welder Fitters	Coil Winders, Tapers, and Finishers
10+ years	1%	0%	Doctoral	0%	0%
8-10 years	1%	0%	Professional Degree	0%	0%
6-8 years	0%	0%	Post-Masters Cert	0%	0%
4-6 years	0%	0%	Master's Degree	0%	0%
2-4 years	17%	2%	Post-Bachelor Cert	0%	0%
1-2 years	23%	18%	Bachelors	0%	0%
6-12 months	28%	28%	AA or Equiv	0%	0%
3-6 months	6%	5%	Some College	8%	0%
1-3 months	1%	1%	Post-Secondary Certificate	26%	2%
0-1 month	6%	5%	High School Diploma or GED	26%	51%
None	11%	38%	No HSD or GED	38%	46%
Welders, Cutters, and Welder Fitters			Coil Winders, Tapers, and Finishers		
<b>Most Common Educational/Training Requirement:</b>					
Long-term on-the-job training			Short-term on-the-job training		
<b>Job Zone Comparison</b>					
2 - Job Zone Two: Some Preparation Needed			2 - Job Zone Two: Some Preparation Needed		
Some previous work-related skill, knowledge, or experience may be helpful in these occupations, but usually is not needed. For example, a teller might benefit from experience working directly with the public, but an inexperienced person could still learn to be a teller with little difficulty.			Some previous work-related skill, knowledge, or experience may be helpful in these occupations, but usually is not needed. For example, a teller might benefit from experience working directly with the public, but an inexperienced person could still learn to be a teller with little difficulty.		
These occupations usually require a high school diploma and may require some vocational training or job-related course work. In some cases, an associate's or bachelor's degree could be needed.			These occupations usually require a high school diploma and may require some vocational training or job-related course work. In some cases, an associate's or bachelor's degree could be needed.		
Employees in these occupations need anywhere from a few months to one year of working with experienced employees.			Employees in these occupations need anywhere from a few months to one year of working with experienced employees.		

**Tasks**

Welders, Cutters, and Welder Fitters	Coil Winders, Tapers, and Finishers
Core Tasks	Core Tasks
Generalized Work Activities:	Generalized Work Activities:
<ul style="list-style-type: none"> <li>Inspecting Equipment, Structures, or Material - Inspecting equipment, structures, or materials to identify the cause of errors or other problems or defects.</li> <li>Identifying Objects, Actions, and Events - Identifying information by categorizing, estimating, recognizing differences or similarities, and detecting changes in circumstances or events.</li> <li>Getting Information - Observing, receiving, and otherwise obtaining information from all relevant sources.</li> <li>Communicating with Supervisors, Peers, or Subordinates - Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in</li> </ul>	<ul style="list-style-type: none"> <li>Controlling Machines and Processes - Using either control mechanisms or direct physical activity to operate machines or processes (not including computers or vehicles).</li> <li>Handling and Moving Objects - Using hands and arms in handling, installing, positioning, and moving materials, and manipulating things.</li> <li>Getting Information - Observing, receiving, and otherwise obtaining information from all relevant sources.</li> <li>Training and Teaching Others - Identifying the educational needs of others, developing formal educational or training programs or classes, and teaching or instructing others.</li> </ul>



person.

- Evaluating Information to Determine Compliance with Standards - Using relevant information and individual judgment to determine whether events or processes comply with laws, regulations, or standards.

#### Specific Tasks

##### Occupation Specific Tasks:

- Adjust electric current and timing cycles of resistance welding machines to heat metals to bonding temperature.
- Align and clamp workpieces together, using rules, squares, or hand tools, or position items in fixtures, jigs, or vises.
- Brush flux onto joints of workpieces or dip braze rods into flux, to prevent oxidation of metal.
- Clean equipment parts, such as tips of soldering irons, using chemical solutions or cleaning compounds.
- Clean joints of workpieces with wire brushes or by dipping them into cleaning solutions.
- Clean workpieces to remove dirt and excess acid, using chemical solutions, files, wire brushes, or grinders.
- Connect hoses from torches to regulator valves and cylinders of oxygen and specified gas fuels.
- Cut carbon electrodes to specified sizes and shapes, using cutoff saws.
- Dip workpieces into molten solder, or place solder strips between seams and heat seams with irons, to bond items together.
- Examine seams for defects, and rework defective joints or broken parts.
- Grind, cut, buff, or bend edges of workpieces to be joined to ensure snug fit, using power grinders and hand tools.
- Guide torches and rods along joints of workpieces to heat them to brazing temperature, melt braze alloys, and bond workpieces together.
- Heat soldering irons or workpieces to specified temperatures for soldering, using gas flames or electric current.
- Melt and apply solder along adjoining edges of workpieces to solder joints, using soldering irons, gas torches, or electric-ultrasonic equipment.
- Melt and apply solder to fill holes, indentations, and seams of fabricated metal products, using soldering equipment.
- Melt and separate brazed or soldered joints to remove and straighten damaged or misaligned components, using hand torches, irons or furnaces.
- Place solder bars into containers, and turn knobs to specified positions to melt solder and regulate its temperature.
- Remove workpieces from fixtures, using tongs, and cool workpieces, using air or water.

Communicating with Supervisors, Peers, or Subordinates - Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person.

#### Specific Tasks

##### Occupation Specific Tasks:

- Apply solutions or paints to wired electrical components, using hand tools; and bake components.
- Attach, alter, and trim materials such as wire, insulation, and coils, using hand tools.
- Cut, strip, and bend wire leads at ends of coils, using pliers and wire scrapers.
- Disassemble and assemble motors, and repair and maintain electrical components and machinery parts, using hand tools.
- Examine and test wired electrical components such as motors, armatures, and stators, using measuring devices; and record test results.
- Line slots with sheet insulation, and insert coils into slots.
- Operate or tend wire-coiling machines to wind wire coils used in electrical components such as resistors and transformers, and in electrical equipment and instruments such as bobbins and generators.
- Record production and operational data on specified forms.
- Review work orders and specifications to determine materials needed and types of parts to be processed.
- Select and load materials such as workpieces, objects, and machine parts onto equipment used in coiling processes.
- Stop machines to remove completed components, using hand tools.

#### Detailed Tasks

##### Detailed Work Activities:

- examine products or work to verify conformance to specifications
- load or unload material or workpiece into machinery
- maintain or repair industrial or related equipment/machinery
- maintain production or work records
- monitor production machinery/equipment operation to detect problems
- monitor the quantity of assembly output
- operate coil winding machines
- perform repetitive tasks in assembly setting
- read blueprints
- read technical drawings
- read work order, instructions, formulas, or processing charts
- repair or replace electrical wiring, circuits, fixtures, or equipment



- Remove workpieces from molten solder and hold parts together until color indicates that solder has set.
- Select torch tips, flux, and brazing alloys from data charts or work orders.
- Smooth soldered areas with alternate strokes of paddles and torches, leaving soldered sections slightly higher than surrounding areas for later filing.
- Sweat together workpieces coated with solder.
- Turn dials to set intensity and duration of ultrasonic impulses, according to work order specifications.
- Turn valves to start flow of gases, and light flames and adjust valves to obtain desired colors and sizes of flames.

#### Detailed Tasks

##### Detailed Work Activities:

- adjust welding equipment
- apply cleaning solvents
- apply flux to workpiece before soldering or brazing
- braze metal parts or components together
- clean or degrease weld, or parts to be welded or soldered
- examine products or work to verify conformance to specifications
- fabricate, assemble, or disassemble manufactured products by hand
- file, sand, grind, or polish metal or plastic objects
- identify properties of metals for repair or fabrication activities
- load or unload material or workpiece into machinery
- monitor the quantity of assembly output
- move or fit heavy objects
- perform safety inspections in industrial, manufacturing or repair setting
- position, clamp or assemble workpiece prior to welding
- preheat metal before welding, brazing, or soldering
- read blueprints
- read production layouts
- read technical drawings
- read work order, instructions, formulas, or processing charts
- sharpen metal objects
- solder metal parts or components together
- understand technical operating, service or repair manuals
- use acetylene welding/cutting torch
- use braze-welding equipment
- use hand or power tools
- use soldering equipment

- solder electrical or electronic connections or components
- solder metal parts or components together
- test manufactured products or materials
- understand service or repair manuals
- understand technical operating, service or repair manuals
- use electronic calibration devices
- use hand or power tools
- use oscilloscopes in electronics repair
- use precision tools in electronics repair
- use soldering equipment
- use voltmeter, ammeter, or ohmmeter

#### Technology - Examples



---

**Technology - Examples**

---

**Analytical or scientific software**

- Scientific Software Group Filter Drain FD

**Calendar and scheduling software**

- OmniFleet Equipment Maintenance Management

**Computer aided design CAD software**

- EZ Pipe software

**Project management software**

- Recordkeeping software
- 

**Tools - Examples**

---

- Wrenches
- Anvils
- Bandsaws
- Slitters
- Motorized cutting torches
- Calipers
- Desktop computers
- Underwater electrode holders
- Files
- Gas flow measurement instruments
- Forklifts
- Current converters
- Brazing equipment
- Goggles
- Grinding machinery
- Hand chipping hammers
- Clamps
- Temperature measurement instruments
- Electric overhead hoists
- Hydraulic presses
- Impact wrenches
- Hydraulic jacks
- Ladders
- Laser printers



- Laser welders
- Lathes
- Levels
- Light trucks
- Hydraulic truck lifts
- Metal inert gas MIG welders
- Metal markers
- Punches
- Computerized numerical control CNC programmable welding robot controllers
- Micrometers
- Milling machines
- Nibblers
- Personal computers
- Pipe cutters
- Plasma welders
- Air drills
- Air chisels
- Air scalars
- Buffers
- Power chippers
- Power drills
- Power grinders
- Cutoff saws
- Steamers
- Waterproof gloves
- Angle finders
- Pinchbars
- Comealongs
- Ratchets
- Self-contained breathing equipment
- Respirator hose masks
- Welding lenses



- Scaffolding
- Scribes
- Shears
- Socket sets
- Soldering irons
- Wire feed rate measurement instruments
- Squares
- Straightedges
- Metal benders
- Dies
- Fillet weld gauges
- Electric pipe threaders
- Hand pipe threaders
- Tungsten inert gas TIG welding equipment
- Two way radios
- Ultrasonic welding equipment
- Arc voltage measurement instruments
- Arc welders
- Underwater electrodes
- Direct current DC sources
- Face shields
- Welding tips
- Welding robots
- Rod ovens
- Electrode wires
- Dive suits
- Winches
- Power wire brushes
- Wire cutters
- Overhead cranes
- Brakes

## Labor Market Comparison



## Maine Department of Labor.

Description	Welders, Cutters, and Welder Fitters	Coil Winders, Tapers, and Finishers	Difference
Median Wage	\$ 38,030	\$ 31,910	\$( 6,120)
10th Percentile Wage	\$ 22,680	\$ 18,350	\$( 4,330)
25th Percentile Wage	N/A	N/A	N/A
75th Percentile Wage	\$ 46,190	\$ 34,740	\$( 11,450)
90th Percentile Wage	\$ 50,780	\$ 36,440	\$( 14,340)
Mean Wage	\$ 38,260	\$ 29,130	\$( 9,130)
Total Employment - 2563	1,610	90	-1,520
Employment Base - 2006	1,691	77	-1,614
Projected Employment - 2572	1,816	36	-1,780
Projected Job Growth - 2006-2572	7.4 %	-53.2 %	-60.6 %
Projected Annual Openings - 2006-2572	49	1	-48
Special			
Special Occupations:			

## National Job Posting Trends

Trend for Welders, Cutters, and Welder Fitters and Coil Winders, Tapers, and Finishers

Data from [Indeed](http://Indeed.com)

## Programs



### Related Programs

#### Industrial Electronics Installer and Repairer

Industrial Electronics Technology/Technician. A program that prepares individuals to apply technical knowledge and skills to assemble, install, operate, maintain, and repair electrical/electronic equipment used in industry and manufacturing. Includes instruction in installing, maintaining and testing various types of equipment.

No information on schools for the program

### Maine Statewide Promotion Opportunities for Welders, Cutters, and Welder Fitters

O*NET Code	Title	Grand TORQ	Job Zone	Employment	Median Wage	Difference	Growth	Annual Job Openings	Special
51-4121.06	Welders, Cutters, and Welder Fitters	100	2	1,610	\$38,030.00	\$0.00	7%	49	
51-4192.00	Lay-Out Workers, Metal and Plastic	85	2	180	\$43,870.00	\$5,840.00	-24%	3	
49-9044.00	Millwrights	81	3	830	\$41,280.00	\$3,250.00	-12%	11	
51-4121.07	Solderers and Brazers	80	2	1,610	\$38,030.00	\$0.00	7%	49	
51-4111.00	Tool and Die Makers	80	3	160	\$51,670.00	\$13,640.00	-11%	2	
51-9196.00	Paper Goods Machine Setters, Operators, and Tenders	79	2	910	\$38,230.00	\$200.00	-26%	23	
47-2011.00	Boilermakers	77	4	60	\$39,260.00	\$1,230.00	12%	3	
51-4041.00	Machinists	77	3	1,860	\$41,560.00	\$3,530.00	4%	35	
47-2082.00	Tapers	76	2	70	\$39,910.00	\$1,880.00	5%	3	
49-9096.00	Riggers	76	3	250	\$39,140.00	\$1,110.00	-12%	2	
47-2021.00	Brickmasons and Blockmasons	74	2	270	\$38,960.00	\$930.00	6%	10	
49-9012.00	Control and Valve Installers and Repairers, Except Mechanical Door	74	3	170	\$47,860.00	\$9,830.00	-9%	3	
49-9041.00	Industrial Machinery Mechanics	74	3	990	\$39,370.00	\$1,340.00	7%	25	
51-4011.00	Computer-Controlled Machine Tool Operators, Metal and Plastic	73	2	720	\$40,490.00	\$2,460.00	6%	12	
49-2094.00	Electrical and Electronics Repairers, Commercial and Industrial Equipment	73	3	440	\$49,450.00	\$11,420.00	-19%	15	

Special Occupations:



### Top Industries for Coil Winders, Tapers, and Finishers

Industry	NAICS	% of Industry	Employment	Projected Employment	% Change
Electrical equipment manufacturing	335300	33.68%	7,692	5,229	-32.03%
Semiconductor and other electronic component manufacturing	334400	22.01%	5,025	3,514	-30.07%
Nonferrous metal (except aluminum) production and processing	331400	6.62%	1,512	846	-44.04%
Other electrical equipment and component manufacturing	335900	5.64%	1,289	955	-25.87%
Motor vehicle parts manufacturing	336300	4.97%	1,136	723	-36.31%
Navigational, measuring, electromedical, and control instruments manufacturing	334500	4.51%	1,030	789	-23.41%
Spring and wire product manufacturing	332600	2.32%	529	313	-40.78%
Commercial and industrial machinery and equipment (except automotive and electronic) repair and maintenance	811300	2.16%	494	418	-15.34%
Employment services	561300	2.08%	475	481	1.25%
Alumina and aluminum production and processing	331300	1.53%	348	194	-44.32%
Communications equipment manufacturing	334200	1.34%	306	247	-19.36%
Household appliance manufacturing	335200	1.16%	265	161	-39.46%
Electric lighting equipment manufacturing	335100	1.00%	227	136	-40.21%
Steel product manufacturing from purchased steel	331200	0.72%	164	116	-29.20%
Engine, turbine, and power transmission equipment manufacturing	333600	0.35%	80	54	-32.85%

### Top Industries for Welders, Cutters, and Welder Fitters

Industry	NAICS	% of Industry	Employment	Projected Employment	% Change
Architectural and structural metals manufacturing	332300	11.33%	46,347	52,658	13.62%
Agriculture, construction, and mining machinery manufacturing	333100	6.36%	26,009	25,834	-0.67%
Self-employed workers, primary job	000601	5.26%	21,505	24,372	13.33%
Motor vehicle body and trailer manufacturing	336200	5.12%	20,924	21,779	4.09%
Commercial and industrial machinery and equipment (except automotive and electronic) repair and maintenance	811300	4.38%	17,916	20,168	12.57%
Other general purpose machinery manufacturing	333900	3.83%	15,672	15,050	-3.97%
Boiler, tank, and shipping container manufacturing	332400	3.10%	12,686	12,161	-4.14%
Motor vehicle parts manufacturing	336300	3.03%	12,410	10,511	-15.31%
Machine shops	332710	3.03%	12,381	10,895	-12.00%



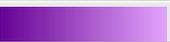
Other fabricated metal product manufacturing	332900	2.73%	11,163	10,522	-5.74%
Employment services	561300	2.58%	10,544	14,196	34.64%
Ship and boat building	336600	2.51%	10,285	12,246	19.07%
Ventilation, heating, air-conditioning, and commercial refrigeration equipment manufacturing	333400	2.39%	9,762	9,553	-2.14%
Nonresidential building construction	236200	2.03%	8,323	9,921	19.20%
Industrial machinery manufacturing	333200	1.31%	5,341	4,655	-12.85%



# TORQ Analysis of Welders, Cutters, and Welder Fitters to Helpers--Production Workers

ANALYSIS INPUT					
Transfer	Title	O*NET	Filters		
From Title:	Welders, Cutters, and Welder Fitters	51-4121.06	Abilities:	Importance Level: 50	Weight: 1
To Title:	Helpers--Production Workers	51-9198.00	Skills:	Importance Level: 69	Weight: 1
Labor Market Area:	Maine Statewide		Knowledge:	Importance Level: 69	Weight: 1

TORQ RESULTS							
Grand TORQ:					83		
Ability TORQ		Skills TORQ		Knowledge TORQ			
Level	 94	Level	 80	Level	 75		
Gaps To Narrow if Possible			Upgrade These Skills		Knowledge to Add		
Ability	Level	Gap	Imp	Skill	Level	Gap	Imp
Control Precision	50	6	53	No Skills Upgrade Required!		No Knowledge Upgrades Required!	
Trunk Strength	48	4	59				
<p>LEVEL and IMP (IMPORTANCE) refer to the Target Helpers--Production Workers. GAP refers to level difference between Welders, Cutters, and Welder Fitters and Helpers--Production Workers.</p>							

ASK ANALYSIS			
Ability Level Comparison - Abilities with importance scores over 50			
Description	Welders, Cutters, and Welder Fitters	Helpers--Production Workers	Importance
Near Vision	50 	48 	62 
Trunk Strength	44 	48 	59 
Arm-Hand Steadiness	51 	48 	56 
Problem Sensitivity	39 	39 	53 
Control Precision	44 	50 	53 
Oral Comprehension	46 	44 	50 
Oral Expression	50 	37 	50 
Deductive Reasoning	39 	37 	50 
Manual Dexterity	46 	42 	50 
Multilimb Coordination	44 	44 	50 
Skill Level Comparison - Abilities with importance scores over 69			
Description	Welders, Cutters, and Welder Fitters	Helpers--Production Workers	Importance



Knowledge Level Comparison - Knowledge with importance scores over 69

Description	Welders, Cutters, and Welder Fitters	Helpers--Production Workers	Importance
-------------	--------------------------------------	-----------------------------	------------

**Experience & Education Comparison**

Related Work Experience Comparison			Required Education Level Comparison		
Description	Welders, Cutters, and Welder Fitters	Helpers--Production Workers	Description	Welders, Cutters, and Welder Fitters	Helpers--Production Workers
10+ years	1%	0%	Doctoral	0%	0%
8-10 years	1%	0%	Professional Degree	0%	0%
6-8 years	0%	0%	Post-Masters Cert	0%	0%
4-6 years	0%	0%	Master's Degree	0%	0%
2-4 years	17%	0%	Post-Bachelor Cert	0%	0%
1-2 years	23%	13%	Bachelors	0%	0%
6-12 months	28%	39%	AA or Equiv	0%	0%
3-6 months	6%	7%	Some College	8%	0%
1-3 months	1%	1%	Post-Secondary Certificate	26%	11%
0-1 month	6%	10%	High School Diploma or GED	26%	51%
None	11%	27%	No HSD or GED	38%	36%

Welders, Cutters, and Welder Fitters

Helpers--Production Workers

**Most Common Educational/Training Requirement:**

Long-term on-the-job training

Short-term on-the-job training

**Job Zone Comparison**

**2 - Job Zone Two: Some Preparation Needed**  
Some previous work-related skill, knowledge, or experience may be helpful in these occupations, but usually is not needed. For example, a teller might benefit from experience working directly with the public, but an inexperienced person could still learn to be a teller with little difficulty.

**1 - Job Zone One: Little or No Preparation Needed**  
No previous work-related skill, knowledge, or experience is needed for these occupations. For example, a person can become a cashier even if he/she has never worked before.

These occupations usually require a high school diploma and may require some vocational training or job-related course work. In some cases, an associate's or bachelor's degree could be needed.

These occupations may require a high school diploma or GED certificate. Some may require a formal training course to obtain a license.

Employees in these occupations need anywhere from a few months to one year of working with experienced employees.

Employees in these occupations need anywhere from a few days to a few months of training. Usually, an experienced worker could show you how to do the job.

**Tasks**

Welders, Cutters, and Welder Fitters

Helpers--Production Workers

Core Tasks

Core Tasks

Generalized Work Activities:

Generalized Work Activities:

- Inspecting Equipment, Structures, or Material - Inspecting equipment, structures, or materials to identify the cause of errors or other problems or defects.
- Identifying Objects, Actions, and Events - Identifying information by categorizing, estimating, recognizing differences or

- Handling and Moving Objects - Using hands and arms in handling, installing, positioning, and moving materials, and manipulating things.
- Performing General Physical Activities - Performing physical activities that require considerable use of your arms and legs and



similarities, and detecting changes in circumstances or events.

- Getting Information - Observing, receiving, and otherwise obtaining information from all relevant sources.
- Communicating with Supervisors, Peers, or Subordinates - Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person.
- Evaluating Information to Determine Compliance with Standards - Using relevant information and individual judgment to determine whether events or processes comply with laws, regulations, or standards.

#### Specific Tasks

##### Occupation Specific Tasks:

- Adjust electric current and timing cycles of resistance welding machines to heat metals to bonding temperature.
- Align and clamp workpieces together, using rules, squares, or hand tools, or position items in fixtures, jigs, or vises.
- Brush flux onto joints of workpieces or dip braze rods into flux, to prevent oxidation of metal.
- Clean equipment parts, such as tips of soldering irons, using chemical solutions or cleaning compounds.
- Clean joints of workpieces with wire brushes or by dipping them into cleaning solutions.
- Clean workpieces to remove dirt and excess acid, using chemical solutions, files, wire brushes, or grinders.
- Connect hoses from torches to regulator valves and cylinders of oxygen and specified gas fuels.
- Cut carbon electrodes to specified sizes and shapes, using cutoff saws.
- Dip workpieces into molten solder, or place solder strips between seams and heat seams with irons, to bond items together.
- Examine seams for defects, and rework defective joints or broken parts.
- Grind, cut, buff, or bend edges of workpieces to be joined to ensure snug fit, using power grinders and hand tools.
- Guide torches and rods along joints of workpieces to heat them to brazing temperature, melt braze alloys, and bond workpieces together.
- Heat soldering irons or workpieces to specified temperatures for soldering, using gas flames or electric current.
- Melt and apply solder along adjoining edges of workpieces to solder joints, using soldering irons, gas torches, or electric-ultrasonic equipment.
- Melt and apply solder to fill holes, indentations, and seams of fabricated metal products, using soldering equipment.
- Melt and separate brazed or soldered joints

moving your whole body, such as climbing, lifting, balancing, walking, stooping, and handling of materials.

- Controlling Machines and Processes - Using either control mechanisms or direct physical activity to operate machines or processes (not including computers or vehicles).
- Getting Information - Observing, receiving, and otherwise obtaining information from all relevant sources.
- Identifying Objects, Actions, and Events - Identifying information by categorizing, estimating, recognizing differences or similarities, and detecting changes in circumstances or events.

#### Specific Tasks

##### Occupation Specific Tasks:

- Attach slings, ropes, and cables to objects such as pipes, hoses, and bundles.
- Break up defective products for reprocessing.
- Change machine gears, using wrenches.
- Clean and lubricate equipment.
- Count finished products to determine if product orders are complete.
- Cut or break flashing from materials or products.
- Dump materials such as prepared ingredients into machine hoppers prior to mixing.
- Examine products to verify conformance to quality standards.
- Fold products and product parts during processing.
- Help production workers by performing duties of lesser skill, such as supplying or holding materials or tools, and cleaning work areas and equipment.
- Lift raw materials, finished products, and packed items, manually or using hoists.
- Load and unload items from machines, conveyors, and conveyances.
- Mark or tag identification on parts.
- Measure amounts of products, lengths of extruded articles, or weights of filled containers to ensure conformance to specifications.
- Mix ingredients according to specified procedures and formulas.
- Observe equipment operations so that malfunctions can be detected, and notify operators of any malfunctions.
- Operate machinery used in the production process, or assist machine operators.
- Pack and store materials and products.
- Pack food products in paper bags and boxes, and stack them in warehouses and coolers.
- Perform minor repairs to machines, such as replacing damaged or worn parts.
- Place products in equipment or on work surfaces for further processing, inspecting, or wrapping.



to remove and straighten damaged or misaligned components, using hand torches, irons or furnaces.

- Place solder bars into containers, and turn knobs to specified positions to melt solder and regulate its temperature.
- Remove workpieces from fixtures, using tongs, and cool workpieces, using air or water.
- Remove workpieces from molten solder and hold parts together until color indicates that solder has set.
- Select torch tips, flux, and brazing alloys from data charts or work orders.
- Smooth soldered areas with alternate strokes of paddles and torches, leaving soldered sections slightly higher than surrounding areas for later filing.
- Sweat together workpieces coated with solder.
- Turn dials to set intensity and duration of ultrasonic impulses, according to work order specifications.
- Turn valves to start flow of gases, and light flames and adjust valves to obtain desired colors and sizes of flames.

#### Detailed Tasks

##### Detailed Work Activities:

- adjust welding equipment
- apply cleaning solvents
- apply flux to workpiece before soldering or brazing
- braze metal parts or components together
- clean or degrease weld, or parts to be welded or soldered
- examine products or work to verify conformance to specifications
- fabricate, assemble, or disassemble manufactured products by hand
- file, sand, grind, or polish metal or plastic objects
- identify properties of metals for repair or fabrication activities
- load or unload material or workpiece into machinery
- monitor the quantity of assembly output
- move or fit heavy objects
- perform safety inspections in industrial, manufacturing or repair setting
- position, clamp or assemble workpiece prior to welding
- preheat metal before welding, brazing, or soldering
- read blueprints
- read production layouts
- read technical drawings
- read work order, instructions, formulas, or processing charts
- 

- Position spouts or chutes of storage bins so that containers can be filled.
- Prepare raw materials for processing.
- Read gauges and charts, and record data obtained.
- Record information such as the number of products tested, meter readings, and dates and times of product production.
- Remove products, machine attachments, and waste material from machines.
- Separate products according to weight, grade, size, and composition of materials used to produce them.
- Signal coworkers to direct them to move products during the production process.
- Start machines or equipment in order to begin production processes.
- Thread ends of items such as thread, cloth, and lace through needles and rollers, and around take-up tubes.
- Tie products in bundles for further processing or shipment, following prescribed procedures.
- Transfer finished products, raw materials, tools, or equipment between storage and work areas of plants and warehouses, by hand or using hand trucks or powered lift trucks.
- Turn valves to regulate flow of liquids or air, to reverse machines, to start pumps, or to regulate equipment.
- Unclamp and hoist full reels from braiding, winding, and other fabricating machines, using power hoists.
- Wash work areas, machines, equipment, vehicles, and products.

#### Detailed Tasks

##### Detailed Work Activities:

- adjust production equipment/machinery setup
- attach or mark identification onto products or containers
- clean equipment or machinery
- clean rooms or work areas
- examine products or work to verify conformance to specifications
- load or unload material or workpiece into machinery
- load, unload, or stack containers, materials, or products
- lubricate machinery, equipment, or parts
- maintain or repair industrial or related equipment/machinery
- maintain production or work records
- measure, weigh, or count products or materials
- mix paint, ingredients, or chemicals, according to specifications
- monitor production machinery/equipment operation to detect problems



## Sharpen metal objects

- solder metal parts or components together
- understand technical operating, service or repair manuals
- use acetylene welding/cutting torch
- use braze-welding equipment
- use hand or power tools
- use soldering equipment

## Technology - Examples

## Analytical or scientific software

- Scientific Software Group Filter Drain FD

## Calendar and scheduling software

- OmniFleet Equipment Maintenance Management

## Computer aided design CAD software

- EZ Pipe software

## Project management software

- Recordkeeping software

## Tools - Examples

- Wrenches
- Anvils
- Bandsaws
- Slitters
- Motorized cutting torches
- Calipers
- Desktop computers
- Underwater electrode holders
- Files
- Gas flow measurement instruments
- Forklifts
- Current converters
- Brazing equipment
- Goggles
- Grinding machinery
- Hand chipping hammers
- Clamps
- Temperature measurement instruments
- Electric overhead hoists

- move or fit heavy objects
- operate food processing production equipment/machinery
- operate hoist, winch, or hydraulic boom
- operate metal or plastic fabricating equipment/machinery
- operate ore refining/foundry equipment/machinery
- operate packaging or banding machine or equipment
- operate pulp or paper making equipment
- operate textile production equipment/machinery
- operate woodworking equipment/machinery
- package goods for shipment or storage
- perform repetitive tasks in assembly setting
- perform safety inspections in manufacturing or industrial setting
- read work order, instructions, formulas, or processing charts
- signal directions or warnings to coworkers
- sort manufacturing materials or products
- wrap products

## Technology - Examples

## Data base user interface and query software

- Data entry software

## Spreadsheet software

- Microsoft Excel

## Word processing software

- Microsoft Word

## Tools - Examples

- Adjustable wrenches
- Hand files
- Industrial platform scales
- Forklifts
- Grease guns
- Claw hammers
- Handtrucks
- Power hoists
- Hydraulic booms
- Hand jacks
- Label-making machines
- Platform ladders



- Hydraulic presses
- Impact wrenches
- Hydraulic jacks
- Ladders
- Laser printers
- Laser welders
- Lathes
- Levels
- Light trucks
- Hydraulic truck lifts
- Metal inert gas MIG welders
- Metal markers
- Punches
- Computerized numerical control CNC programmable welding robot controllers
- Micrometers
- Milling machines
- Nibblers
- Personal computers
- Pipe cutters
- Plasma welders
- Air drills
- Air chisels
- Air scalars
- Buffers
- Power chippers
- Power drills
- Power grinders
- Cutoff saws
- Steamers
- Waterproof gloves
- Angle finders
- Pinchbars

- Locking pliers
- Personal computers
- Planing tools
- Jackhammers
- Power drills
- Power grinders
- Power nail guns
- Power sanders
- Power saws
- Pressure wands
- Hand saws
- Phillips head screwdrivers
- Skid steer loaders
- Material-hoisting slings
- Power staple guns
- Measuring tapes
- Utility knives
- Industrial vacuum cleaners
- Hydraulic winches



- Comealongs
- Ratchets
- Self-contained breathing equipment
- Respirator hose masks
- Welding lenses
- Scaffolding
- Scribes
- Shears
- Socket sets
- Soldering irons
- Wire feed rate measurement instruments
- Squares
- Straightedges
- Metal benders
- Dies
- Fillet weld gauges
- Electric pipe threaders
- Hand pipe threaders
- Tungsten inert gas TIG welding equipment
- Two way radios
- Ultrasonic welding equipment
- Arc voltage measurement instruments
- Arc welders
- Underwater electrodes
- Direct current DC sources
- Face shields
- Welding tips
- Welding robots
- Rod ovens
- Electrode wires
- Dive suits
- Winches



- Power wire brushes
- Wire cutters
- Overhead cranes
- Brakes

## Labor Market Comparison

Maine Department of Labor.

Description	Welders, Cutters, and Welder Fitters	Helpers--Production Workers	Difference
Median Wage	\$ 38,030	\$ 22,260	\$( 15,770)
10th Percentile Wage	\$ 22,680	\$ 17,160	\$( 5,520)
25th Percentile Wage	N/A	N/A	N/A
75th Percentile Wage	\$ 46,190	\$ 25,210	\$( 20,980)
90th Percentile Wage	\$ 50,780	\$ 30,870	\$( 19,910)
Mean Wage	\$ 38,260	\$ 23,130	\$( 15,130)
Total Employment - 2563	1,610	1,490	-120
Employment Base - 2006	1,691	1,522	-169
Projected Employment - 2572	1,816	1,365	-451
Projected Job Growth - 2006-2572	7.4 %	-10.3 %	-17.7 %
Projected Annual Openings - 2006-2572	49	37	-12
Special			

Special Occupations:

## National Job Posting Trends

Trend for Welders, Cutters, and Welder Fitters and Helpers--Production Workers



### Programs

No information on programs or the occupation.

### Maine Statewide Promotion Opportunities for Welders, Cutters, and Welder Fitters

O*NET Code	Title	Grand TORQ	Job Zone	Employment	Median Wage	Difference	Growth	Annual Job Openings	Special
51-4121.06	Welders, Cutters, and Welder Fitters	100	2	1,610	\$38,030.00	\$0.00	7%	49	
51-4192.00	Lay-Out Workers, Metal and Plastic	85	2	180	\$43,870.00	\$5,840.00	-24%	3	
49-9044.00	Millwrights	81	3	830	\$41,280.00	\$3,250.00	-12%	11	
51-4121.07	Solderers and Brazers	80	2	1,610	\$38,030.00	\$0.00	7%	49	
51-4111.00	Tool and Die Makers	80	3	160	\$51,670.00	\$13,640.00	-11%	2	
51-9196.00	Paper Goods Machine Setters, Operators, and Tenders	79	2	910	\$38,230.00	\$200.00	-26%	23	
47-2011.00	Boilermakers	77	4	60	\$39,260.00	\$1,230.00	12%	3	
51-4041.00	Machinists	77	3	1,860	\$41,560.00	\$3,530.00	4%	35	
47-2082.00	Tapers	76	2	70	\$39,910.00	\$1,880.00	5%	3	
49-9096.00	Riggers	76	3	250	\$39,140.00	\$1,110.00	-12%	2	
47-2021.00	Brickmasons and Blockmasons	74	2	270	\$38,960.00	\$930.00	6%	10	



49-9041.00	Industrial Machinery Mechanics	74	3	990	\$39,370.00	\$1,340.00	7%	25
49-9012.00	Control and Valve Installers and Repairers, Except Mechanical Door	74	3	170	\$47,860.00	\$9,830.00	-9%	3
49-2094.00	Electrical and Electronics Repairers, Commercial and Industrial Equipment	73	3	440	\$49,450.00	\$11,420.00	-19%	15
51-4011.00	Computer-Controlled Machine Tool Operators, Metal and Plastic	73	2	720	\$40,490.00	\$2,460.00	6%	12

Special Occupations:

### Top Industries for Helpers--Production Workers

Industry	NAICS	% of Industry	Employment	Projected Employment	% Change
Employment services	561300	22.19%	120,164	142,842	18.87%
Animal slaughtering and processing	311600	5.61%	30,385	36,112	18.85%
Printing and related support activities	323100	4.49%	24,300	19,253	-20.77%
Converted paper product manufacturing	322200	3.76%	20,372	17,096	-16.08%
Plastics product manufacturing	326100	3.35%	18,157	19,247	6.00%
Bakeries and tortilla manufacturing	311800	2.61%	14,121	14,424	2.15%
Architectural and structural metals manufacturing	332300	2.49%	13,499	14,418	6.80%
Other wood product manufacturing	321900	2.45%	13,261	12,496	-5.77%
Fruit and vegetable preserving and specialty food manufacturing	311400	1.83%	9,936	9,009	-9.33%
Motor vehicle parts manufacturing	336300	1.77%	9,606	7,648	-20.39%
Coating, engraving, heat treating, and allied activities	332800	1.68%	9,101	7,459	-18.03%
Household and institutional furniture manufacturing	337120	1.32%	7,166	5,452	-23.91%
Machine shops	332710	1.30%	7,021	5,808	-17.28%
Cement and concrete product manufacturing	327300	1.17%	6,321	6,861	8.55%
Other fabricated metal product manufacturing	332900	1.15%	6,215	5,507	-11.39%

### Top Industries for Welders, Cutters, and Welder Fitters

Industry	NAICS	% of Industry	Employment	Projected Employment	% Change
Architectural and structural metals manufacturing	332300	11.33%	46,347	52,658	13.62%



Agriculture, construction, and mining machinery manufacturing	333100	6.36%	26,009	25,834	-0.67%
Self-employed workers, primary job	000601	5.26%	21,505	24,372	13.33%
Motor vehicle body and trailer manufacturing	336200	5.12%	20,924	21,779	4.09%
Commercial and industrial machinery and equipment (except automotive and electronic) repair and maintenance	811300	4.38%	17,916	20,168	12.57%
Other general purpose machinery manufacturing	333900	3.83%	15,672	15,050	-3.97%
Boiler, tank, and shipping container manufacturing	332400	3.10%	12,686	12,161	-4.14%
Motor vehicle parts manufacturing	336300	3.03%	12,410	10,511	-15.31%
Machine shops	332710	3.03%	12,381	10,895	-12.00%
Other fabricated metal product manufacturing	332900	2.73%	11,163	10,522	-5.74%
Employment services	561300	2.58%	10,544	14,196	34.64%
Ship and boat building	336600	2.51%	10,285	12,246	19.07%
Ventilation, heating, air-conditioning, and commercial refrigeration equipment manufacturing	333400	2.39%	9,762	9,553	-2.14%
Nonresidential building construction	236200	2.03%	8,323	9,921	19.20%
Industrial machinery manufacturing	333200	1.31%	5,341	4,655	-12.85%



# TORQ Analysis of Welders, Cutters, and Welder Fitters to Team Assemblers

ANALYSIS INPUT					
Transfer	Title	O*NET	Filters		
From Title:	Welders, Cutters, and Welder Fitters	51-4121.06	Abilities:	Importance Level: 50	Weight: 1
To Title:	Team Assemblers	51-2092.00	Skills:	Importance Level: 69	Weight: 1
Labor Market Area:	Maine Statewide		Knowledge:	Importance Level: 69	Weight: 1

TORQ RESULTS											
Grand TORQ:										83	
Ability TORQ			Skills TORQ				Knowledge TORQ				
Level			93	Level			78	Level			78
Gaps To Narrow if Possible				Upgrade These Skills				Knowledge to Add			
Ability	Level	Gap	Impt	Skill	Level	Gap	Impt	Knowledge	Level	Gap	Impt
Speech Recognition	41	7	50	No Skills Upgrade Required!				No Knowledge Upgrades Required!			
Oral Comprehension	51	5	62								
Speech Clarity	41	6	50								
Problem Sensitivity	41	2	53								
Written Expression	37	2	50								
Deductive Reasoning	41	2	50								
LEVEL and IMPT (IMPORTANCE) refer to the Target Team Assemblers. GAP refers to level difference between Welders, Cutters, and Welder Fitters and Team Assemblers.											

ASK ANALYSIS			
Ability Level Comparison - Abilities with importance scores over 50			
Description	Welders, Cutters, and Welder Fitters	Team Assemblers	Importance
Oral Comprehension	46 	51 	62 
Manual Dexterity	46 	41 	62 
Oral Expression	50 	48 	59 
Information Ordering	46 	42 	56 
Arm-Hand Steadiness	51 	39 	56 
Finger Dexterity	42 	42 	56 
Near Vision	50 	44 	56 
Problem Sensitivity	39 	41 	53 



Control Precision	44	44	53
Written Expression	35	37	50
Deductive Reasoning	39	41	50
Speech Recognition	34	41	50
Speech Clarity	35	41	50
Skill Level Comparison - Abilities with importance scores over 69			
Description	Welders, Cutters, and Welder Fitters	Team Assemblers	Importance
Knowledge Level Comparison - Knowledge with importance scores over 69			
Description	Welders, Cutters, and Welder Fitters	Team Assemblers	Importance

Experience & Education Comparison					
Related Work Experience Comparison			Required Education Level Comparison		
Description	Welders, Cutters, and Welder Fitters	Team Assemblers	Description	Welders, Cutters, and Welder Fitters	Team Assemblers
10+ years	1%	0%	Doctoral	0%	0%
8-10 years	1%	0%	Professional Degree	0%	0%
6-8 years	0%	0%	Post-Masters Cert	0%	0%
4-6 years	0%	0%	Master's Degree	0%	0%
2-4 years	17%	4%	Post-Bachelor Cert	0%	0%
1-2 years	23%	6%	Bachelors	0%	0%
6-12 months	28%	10%	AA or Equiv	0%	0%
3-6 months	6%	2%	Some College	8%	1%
1-3 months	1%	6%	Post-Secondary Certificate	26%	11%
0-1 month	6%	17%	High School Diploma or GED	26%	63%
None	11%	50%	No HSD or GED	38%	22%
Welders, Cutters, and Welder Fitters			Team Assemblers		
Most Common Educational/Training Requirement:					
Long-term on-the-job training			Moderate-term on-the-job training		
Job Zone Comparison					
2 - Job Zone Two: Some Preparation Needed			2 - Job Zone Two: Some Preparation Needed		
Some previous work-related skill, knowledge, or experience may be helpful in these occupations, but usually is not needed. For example, a teller might benefit from experience working directly with the public, but an inexperienced person could still learn to be a teller with little difficulty.			Some previous work-related skill, knowledge, or experience may be helpful in these occupations, but usually is not needed. For example, a teller might benefit from experience working directly with the public, but an inexperienced person could still learn to be a teller with little difficulty.		
These occupations usually require a high school diploma and may require some vocational training or job-related course work. In some cases, an associate's or bachelor's degree could be needed.			These occupations usually require a high school diploma and may require some vocational training or job-related course work. In some cases, an associate's or bachelor's degree could be needed.		
Employees in these occupations need anywhere from a few months to one year of working with experienced employees.			Employees in these occupations need anywhere from a few months to one year of working with experienced employees.		

Tasks	
Welders, Cutters, and Welder Fitters	Team Assemblers
Core Tasks	Core Tasks



## Generalized Work Activities:

- Inspecting Equipment, Structures, or Material - Inspecting equipment, structures, or materials to identify the cause of errors or other problems or defects.
- Identifying Objects, Actions, and Events - Identifying information by categorizing, estimating, recognizing differences or similarities, and detecting changes in circumstances or events.
- Getting Information - Observing, receiving, and otherwise obtaining information from all relevant sources.
- Communicating with Supervisors, Peers, or Subordinates - Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person.
- Evaluating Information to Determine Compliance with Standards - Using relevant information and individual judgment to determine whether events or processes comply with laws, regulations, or standards.

## Specific Tasks

## Occupation Specific Tasks:

- Adjust electric current and timing cycles of resistance welding machines to heat metals to bonding temperature.
- Align and clamp workpieces together, using rules, squares, or hand tools, or position items in fixtures, jigs, or vises.
- Brush flux onto joints of workpieces or dip braze rods into flux, to prevent oxidation of metal.
- Clean equipment parts, such as tips of soldering irons, using chemical solutions or cleaning compounds.
- Clean joints of workpieces with wire brushes or by dipping them into cleaning solutions.
- Clean workpieces to remove dirt and excess acid, using chemical solutions, files, wire brushes, or grinders.
- Connect hoses from torches to regulator valves and cylinders of oxygen and specified gas fuels.
- Cut carbon electrodes to specified sizes and shapes, using cutoff saws.
- Dip workpieces into molten solder, or place solder strips between seams and heat seams with irons, to bond items together.
- Examine seams for defects, and rework defective joints or broken parts.
- Grind, cut, buff, or bend edges of workpieces to be joined to ensure snug fit, using power grinders and hand tools.
- Guide torches and rods along joints of workpieces to heat them to brazing temperature, melt braze alloys, and bond workpieces together.
- Heat soldering irons or workpieces to

## Generalized Work Activities:

- Handling and Moving Objects - Using hands and arms in handling, installing, positioning, and moving materials, and manipulating things.
- Controlling Machines and Processes - Using either control mechanisms or direct physical activity to operate machines or processes (not including computers or vehicles).
- Communicating with Supervisors, Peers, or Subordinates - Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person.
- Inspecting Equipment, Structures, or Material - Inspecting equipment, structures, or materials to identify the cause of errors or other problems or defects.
- Identifying Objects, Actions, and Events - Identifying information by categorizing, estimating, recognizing differences or similarities, and detecting changes in circumstances or events.

## Specific Tasks

## Occupation Specific Tasks:

- Determine work assignments and procedures.
- Operate heavy equipment such as forklifts.
- Provide assistance in the production of wiring assemblies.
- Rotate through all the tasks required in a particular production process.
- Shovel and sweep work areas.

## Detailed Tasks

## Detailed Work Activities:

- confer with engineering, technical or manufacturing personnel
- direct and coordinate activities of workers or staff
- examine products or work to verify conformance to specifications
- fabricate, assemble, or disassemble manufactured products by hand
- perform safety inspections in manufacturing or industrial setting
- read work order, instructions, formulas, or processing charts
- use computers to enter, access or retrieve data
- use hand or power tools
- work as a team member

## Technology - Examples

## Computer aided design CAD software

- Computer aided design CAD software

## Data base user interface and query software



specified temperatures for soldering, using gas flames or electric current.

- Melt and apply solder along adjoining edges of workpieces to solder joints, using soldering irons, gas torches, or electric-ultrasonic equipment.
- Melt and apply solder to fill holes, indentations, and seams of fabricated metal products, using soldering equipment.
- Melt and separate brazed or soldered joints to remove and straighten damaged or misaligned components, using hand torches, irons or furnaces.
- Place solder bars into containers, and turn knobs to specified positions to melt solder and regulate its temperature.
- Remove workpieces from fixtures, using tongs, and cool workpieces, using air or water.
- Remove workpieces from molten solder and hold parts together until color indicates that solder has set.
- Select torch tips, flux, and brazing alloys from data charts or work orders.
- Smooth soldered areas with alternate strokes of paddles and torches, leaving soldered sections slightly higher than surrounding areas for later filing.
- Sweat together workpieces coated with solder.
- Turn dials to set intensity and duration of ultrasonic impulses, according to work order specifications.
- Turn valves to start flow of gases, and light flames and adjust valves to obtain desired colors and sizes of flames.

#### Detailed Tasks

##### Detailed Work Activities:

- adjust welding equipment
- apply cleaning solvents
- apply flux to workpiece before soldering or brazing
- braze metal parts or components together
- clean or degrease weld, or parts to be welded or soldered
- examine products or work to verify conformance to specifications
- fabricate, assemble, or disassemble manufactured products by hand
- file, sand, grind, or polish metal or plastic objects
- identify properties of metals for repair or fabrication activities
- load or unload material or workpiece into machinery
- monitor the quantity of assembly output
- move or fit heavy objects
- perform safety inspections in industrial, manufacturing or repair setting
- position, clamp or assemble workpiece prior

- Data entry software

#### Office suite software

- Microsoft Office

#### Spreadsheet software

- Microsoft Excel

- Spreadsheet software

#### Word processing software

- Microsoft Word

- Word processing software

#### Tools - Examples

- Adjustable wrenches
- Bearing installation tools
- Bench vises
- Welding torches
- Dial calipers
- Metal chisels
- Dividers
- Burring tools
- Desktop computers
- Protective ear muffs
- Protective ear plugs
- Engine repair stands
- Fiber reinforced polymer FRP rollers
- Feeler gauges
- Hand files
- Torque angle meters
- Forklifts
- Arc welding equipment
- Dial indicators
- Vacuum bags
- Grinding machines
- Material guiding jigs
- Claw hammers
- Hand clamps



to welding

- preheat metal before welding, brazing, or soldering
- read blueprints
- read production layouts
- read technical drawings
- read work order, instructions, formulas, or processing charts
- sharpen metal objects
- solder metal parts or components together
- understand technical operating, service or repair manuals
- use acetylene welding/cutting torch
- use braze-welding equipment
- use hand or power tools
- use soldering equipment

#### Technology - Examples

Analytical or scientific software

- Scientific Software Group Filter Drain FD

Calendar and scheduling software

- OmniFleet Equipment Maintenance Management

Computer aided design CAD software

- EZ Pipe software

Project management software

- Recordkeeping software

#### Tools - Examples

- Wrenches
- Anvils
- Bandsaws
- Slitters
- Motorized cutting torches
- Calipers
- Desktop computers
- Underwater electrode holders
- Files
- Gas flow measurement instruments
- Forklifts
- Current converters
- Brazing equipment
- Goggles

Grinding machines

- Heat guns
- Pin protrusion gauges
- Allen wrenches
- Power hoists
- Ring squeezers
- Hydraulic press frames
- Power wrenches
- Heating furnaces
- Threaded insert tools
- Hand jacks
- Heat lamps
- Ladders
- Lathes
- Transits
- Locking pliers
- End milling machines
- Plastic mallets
- Metal inert gas MIG welders
- Electrochemical etching devices
- Micrometers
- Computerized numerical control CNC metal-cutting machines
- Milling machines
- Needlenose pliers
- Nut drivers
- Paint application brushes
- Paint application rollers
- High-volume low-pressure HVLP spray guns
- Curing ovens
- Assembly robots
- Rotating mandrels
- Tube cutters
- Flame cutters



- Grinding machinery
- Hand chipping hammers
- Clamps
- Temperature measurement instruments
- Electric overhead hoists
- Hydraulic presses
- Impact wrenches
- Hydraulic jacks
- Ladders
- Laser printers
- Laser welders
- Lathes
- Levels
- Light trucks
- Hydraulic truck lifts
- Metal inert gas MIG welders
- Metal markers
- Punches
- Computerized numerical control CNC programmable welding robot controllers
- Micrometers
- Milling machines
- Nibblers
- Personal computers
- Pipe cutters
- Plasma welders
- Air drills
- Air chisels
- Air scalers
- Buffers
- Power chippers
- Power drills
- Power grinders

- Pneumatic drills
- First assembly jigs
- Power chippers
- Cordless drills
- Bench grinders
- Edge planers
- Belt sanders
- Cutoff saws
- Power drivers
- Anti-vibration gloves
- Protractors
- Pry bars
- Gear pullers
- Center punches
- Ratchets
- Line reamers
- Chopper guns
- Respirators
- Snap ring pliers
- Alligator jaw compression riveters
- Steel rules
- Safety glasses
- Scaffolding
- Straight screwdrivers
- Scribes
- Adhesive application robots
- Beverly shears
- Socket wrenches
- Soldering guns
- Spanner wrenches
- Case wrenches
- Timing lights



- Cutoff saws
- Steamers
- Waterproof gloves
- Angle finders
- Pinchbars
- Comealongs
- Ratchets
- Self-contained breathing equipment
- Respirator hose masks
- Welding lenses
- Scaffolding
- Scribes
- Shears
- Socket sets
- Soldering irons
- Wire feed rate measurement instruments
- Squares
- Straightedges
- Metal benders
- Dies
- Fillet weld gauges
- Electric pipe threaders
- Hand pipe threaders
- Tungsten inert gas TIG welding equipment
- Two way radios
- Ultrasonic welding equipment
- Arc voltage measurement instruments
- Arc welders
- Underwater electrodes
- Direct current DC sources
- Face shields
- Welding tips
- Layout squares
- Squeegees
- Bearing staking tools
- Measuring tapes
- Taps
- Drafting templates
- Tensiometers
- Fuel control wrenches
- Beading tools
- Crimping tools
- Lapping tools
- Tungsten inert gas TIG welding equipment
- Turnbuckles
- Radial drills
- Ultrasonic inspection equipment
- Trimming knives
- Vacuum pumps
- Wedges
- Tack welding equipment
- Welding hoods
- Welding robots
- Spot welding equipment
- Cable cutters
- Jib cranes
- Brakes



- Welding robots
- Rod ovens
- Electrode wires
- Dive suits
- Winches
- Power wire brushes
- Wire cutters
- Overhead cranes
- Brakes

### Labor Market Comparison

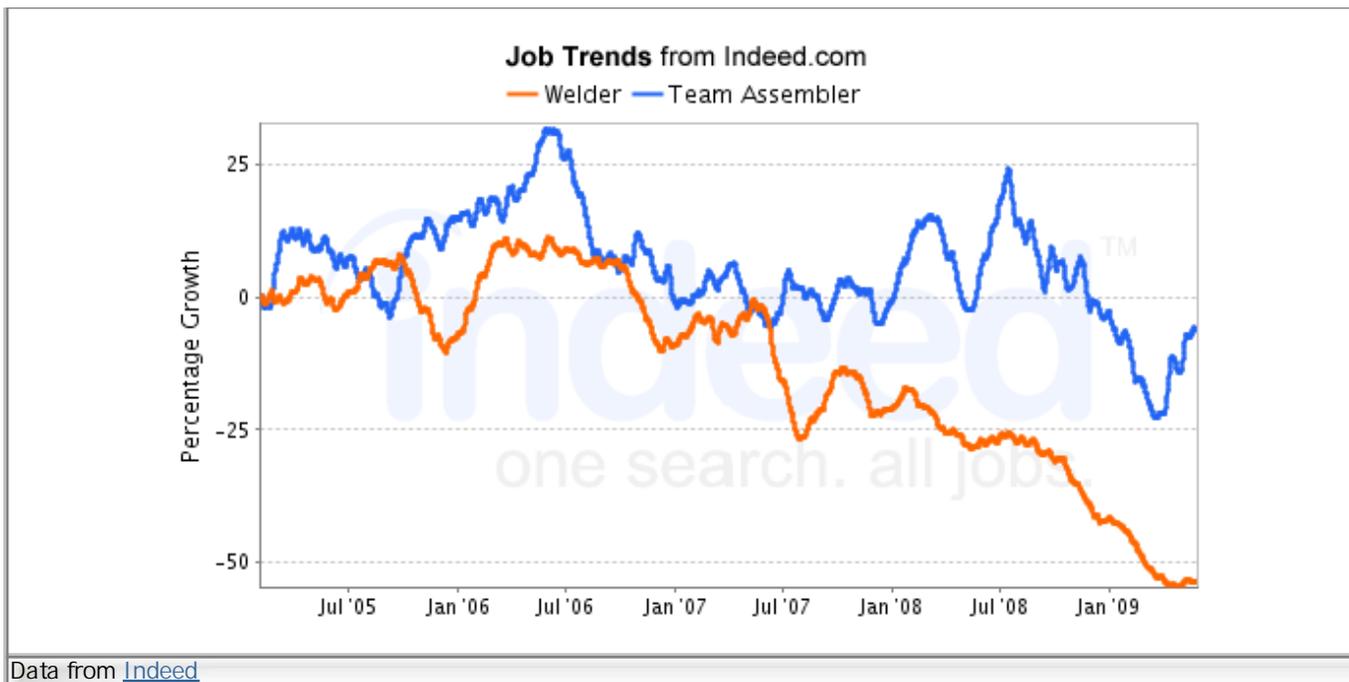
Maine Department of Labor.

Description	Welders, Cutters, and Welder Fitters	Team Assemblers	Difference
Median Wage	\$ 38,030	\$ 23,730	\$( 14,300)
10th Percentile Wage	\$ 22,680	\$ 18,550	\$( 4,130)
25th Percentile Wage	N/A	N/A	N/A
75th Percentile Wage	\$ 46,190	\$ 28,380	\$( 17,810)
90th Percentile Wage	\$ 50,780	\$ 32,810	\$( 17,970)
Mean Wage	\$ 38,260	\$ 25,040	\$( 13,220)
Total Employment - 2563	1,610	3,850	2,240
Employment Base - 2006	1,691	3,958	2,267
Projected Employment - 2572	1,816	3,691	1,875
Projected Job Growth - 2006-2572	7.4 %	-6.7 %	-14.1 %
Projected Annual Openings - 2006-2572	49	82	33
Special			

Special Occupations:

### National Job Posting Trends

Trend for Welders, Cutters, and Welder Fitters and Team Assemblers



## Programs

### Related Programs

#### Sheet Metal Worker

Sheet Metal Technology/Sheetworking. A program that prepares individuals to apply technical knowledge and skills to form, shape, bend and fold extruded metals, including the creation of new products, using hand tools and machines such as cornice brakes, forming rolls, and squaring shears.

Institution	Address	City	URL
Northern Maine Community College	33 Edgemont Dr	Presque Isle	<a href="http://www.nmcc.edu">www.nmcc.edu</a>

#### Shoe, Boot and Leather Repairer

Machine Shop Technology/Assistant. A program that prepares individuals to apply technical knowledge and skills to fabricate and modify metal parts in support of other manufacturing, repair or design activities, or as an independent business.

No information on schools for the program

#### Window Treatment Maker and Installer

Electromechanical Technology/Electromechanical Engineering Technology. A program that prepares individuals to apply basic engineering principles and technical skills in support of engineers engaged in developing and testing automated, servomechanical, and other electromechanical systems. Includes instruction in prototype testing, manufacturing and operational testing, systems analysis and maintenance procedures, and report preparation.

Institution	Address	City	URL
Central Maine Community College	1250 Turner St	Auburn	<a href="http://www.cmcc.edu">www.cmcc.edu</a>
Central Maine Community College	1250 Turner St	Auburn	<a href="http://www.cmcc.edu">www.cmcc.edu</a>

## Maine Statewide Promotion Opportunities for Welders, Cutters, and Welder Fitters



O*NET Code	Title	Grand TORQ	Job Zone	Employment	Median Wage	Difference	Growth	Annual Job Openings	Special
51-4121.06	Welders, Cutters, and Welder Fitters	100	2	1,610	\$38,030.00	\$0.00	7%	49	
51-4192.00	Lay-Out Workers, Metal and Plastic	85	2	180	\$43,870.00	\$5,840.00	-24%	3	
49-9044.00	Millwrights	81	3	830	\$41,280.00	\$3,250.00	-12%	11	
51-4121.07	Solderers and Brazers	80	2	1,610	\$38,030.00	\$0.00	7%	49	
51-4111.00	Tool and Die Makers	80	3	160	\$51,670.00	\$13,640.00	-11%	2	
51-9196.00	Paper Goods Machine Setters, Operators, and Tenders	79	2	910	\$38,230.00	\$200.00	-26%	23	
47-2011.00	Boilermakers	77	4	60	\$39,260.00	\$1,230.00	12%	3	
51-4041.00	Machinists	77	3	1,860	\$41,560.00	\$3,530.00	4%	35	
47-2082.00	Tapers	76	2	70	\$39,910.00	\$1,880.00	5%	3	
49-9096.00	Riggers	76	3	250	\$39,140.00	\$1,110.00	-12%	2	
47-2021.00	Brickmasons and Blockmasons	74	2	270	\$38,960.00	\$930.00	6%	10	
49-9012.00	Control and Valve Installers and Repairers, Except Mechanical Door	74	3	170	\$47,860.00	\$9,830.00	-9%	3	
49-9041.00	Industrial Machinery Mechanics	74	3	990	\$39,370.00	\$1,340.00	7%	25	
51-4011.00	Computer-Controlled Machine Tool Operators, Metal and Plastic	73	2	720	\$40,490.00	\$2,460.00	6%	12	
49-2094.00	Electrical and Electronics Repairers, Commercial and Industrial Equipment	73	3	440	\$49,450.00	\$11,420.00	-19%	15	

Special Occupations:

### Top Industries for Team Assemblers

Industry	NAICS	% of Industry	Employment	Projected Employment	% Change
Employment services	561300	15.68%	199,847	252,932	26.56%
Motor vehicle parts manufacturing	336300	7.79%	99,321	80,278	-19.17%
Motor vehicle manufacturing	336100	4.50%	57,395	57,191	-0.35%
Other wood product manufacturing	321900	3.65%	46,477	43,797	-5.77%
Motor vehicle body and trailer manufacturing	336200	3.47%	44,237	44,350	0.25%



Plastics product manufacturing	326100	3.40%	43,379	45,983	6.00%
Architectural and structural metals manufacturing	332300	2.80%	35,620	38,043	6.80%
Medical equipment and supplies manufacturing	339100	2.66%	33,860	34,635	2.29%
Other fabricated metal product manufacturing	332900	2.47%	31,442	27,859	-11.39%
Ventilation, heating, air-conditioning, and commercial refrigeration equipment manufacturing	333400	2.41%	30,715	28,255	-8.01%
Other general purpose machinery manufacturing	333900	2.36%	30,035	27,113	-9.73%
Navigational, measuring, electromedical, and control instruments manufacturing	334500	1.84%	23,417	22,419	-4.26%
Agriculture, construction, and mining machinery manufacturing	333100	1.79%	22,809	21,297	-6.63%
Household appliance manufacturing	335200	1.65%	21,088	15,957	-24.33%
Semiconductor and other electronic component manufacturing	334400	1.65%	21,011	18,365	-12.59%

### Top Industries for Welders, Cutters, and Welder Fitters

Industry	NAICS	% of Industry	Employment	Projected Employment	% Change
Architectural and structural metals manufacturing	332300	11.33%	46,347	52,658	13.62%
Agriculture, construction, and mining machinery manufacturing	333100	6.36%	26,009	25,834	-0.67%
Self-employed workers, primary job	000601	5.26%	21,505	24,372	13.33%
Motor vehicle body and trailer manufacturing	336200	5.12%	20,924	21,779	4.09%
Commercial and industrial machinery and equipment (except automotive and electronic) repair and maintenance	811300	4.38%	17,916	20,168	12.57%
Other general purpose machinery manufacturing	333900	3.83%	15,672	15,050	-3.97%
Boiler, tank, and shipping container manufacturing	332400	3.10%	12,686	12,161	-4.14%
Motor vehicle parts manufacturing	336300	3.03%	12,410	10,511	-15.31%
Machine shops	332710	3.03%	12,381	10,895	-12.00%
Other fabricated metal product manufacturing	332900	2.73%	11,163	10,522	-5.74%
Employment services	561300	2.58%	10,544	14,196	34.64%
Ship and boat building	336600	2.51%	10,285	12,246	19.07%
Ventilation, heating, air-conditioning, and commercial refrigeration equipment manufacturing	333400	2.39%	9,762	9,553	-2.14%
Nonresidential building construction	236200	2.03%	8,323	9,921	19.20%
Industrial machinery manufacturing	333200	1.31%	5,341	4,655	-12.85%



# TORQ Analysis of Welders, Cutters, and Welder Fitters to Cabinetmakers and Bench Carpenters

## ANALYSIS INPUT

Transfer	Title	O*NET	Filters		
From Title:	Welders, Cutters, and Welder Fitters	51-4121.06	Abilities:	Importance Level: 50	Weight: 1
To Title:	Cabinetmakers and Bench Carpenters	51-7011.00	Skills:	Importance Level: 69	Weight: 1
Labor Market Area:	Maine Statewide		Knowledge:	Importance Level: 69	Weight: 1

## TORQ RESULTS

Grand TORQ:

83

Ability TORQ

Skills TORQ

Knowledge TORQ

Level

85

Level

84

Level

79

### Gaps To Narrow if Possible

### Upgrade These Skills

### Knowledge to Add

Ability	Level	Gap	Imp	Skill	Level	Gap	Imp	Knowledge	Level	Gap	Imp
Finger Dexterity	57	15	78	No Skills Upgrade Required!				No Knowledge Upgrades Required!			
Speed of Limb Movement	39	18	53								
Rate Control	44	14	59								
Manual Dexterity	57	11	75								
Control Precision	55	11	68								
Auditory Attention	46	14	53								
Visual Color Discrimination	48	13	56								
Hearing Sensitivity	41	13	56								
Far Vision	46	11	59								
Reaction Time	53	9	72								
Gross Body Coordination	37	12	53								
Static Strength	51	10	62								
Response Orientation	44	12	50								
Dynamic Strength	42	12	50								
Stamina	39	9	50								
Selective Attention	50	6	56								
Speech Recognition	39	5	53								
Information Ordering	50	4	59								
Written Comprehension	44	3	53								
Problem Sensitivity	42	3	53								



Deductive Reasoning	42	3	50
Trunk Strength	46	2	68
Multilimb Coordination	46	2	65
Visualization	53	2	59

LEVEL and IMPT (IMPORTANCE) refer to the Target Cabinetmakers and Bench Carpenters. GAP refers to level difference between Welders, Cutters, and Welder Fitters and Cabinetmakers and Bench Carpenters.

## ASK ANALYSIS

### Ability Level Comparison - Abilities with importance scores over 50

Description	Welders, Cutters, and Welder Fitters	Cabinetmakers and Bench Carpenters	Importance
Arm-Hand Steadiness	51	51	78
Finger Dexterity	42	57	78
Manual Dexterity	46	57	75
Reaction Time	44	53	72
Control Precision	44	55	68
Trunk Strength	44	46	68
Multilimb Coordination	44	46	65
Near Vision	50	48	65
Static Strength	41	51	62
Information Ordering	46	50	59
Visualization	51	53	59
Rate Control	30	44	59
Far Vision	35	46	59
Category Flexibility	46	44	56
Selective Attention	44	50	56
Visual Color Discrimination	35	48	56
Hearing Sensitivity	28	41	56
Speech Clarity	35	35	56
Written Comprehension	41	44	53
Oral Expression	50	50	53
Problem Sensitivity	39	42	53
Speed of Limb Movement	21	39	53
Gross Body Coordination	25	37	53
Auditory Attention	32	46	53
Speech Recognition	34	39	53
Oral Comprehension	46	46	50
Deductive Reasoning	39	42	50
Perceptual Speed	37	35	50
Response Orientation	32	44	50
Dynamic Strength	30	42	50
Stamina	30	39	50



Extent Flexibility	44	44	50
Depth Perception	42	41	50
Skill Level Comparison - Abilities with importance scores over 69			
Description	Welders, Cutters, and Welder Fitters	Cabinetmakers and Bench Carpenters	Importance
Knowledge Level Comparison - Knowledge with importance scores over 69			
Description	Welders, Cutters, and Welder Fitters	Cabinetmakers and Bench Carpenters	Importance

## Experience & Education Comparison

Related Work Experience Comparison			Required Education Level Comparison		
Description	Welders, Cutters, and Welder Fitters	Cabinetmakers and Bench Carpenters	Description	Welders, Cutters, and Welder Fitters	Cabinetmakers and Bench Carpenters
10+ years	1%	0%	Doctoral	0%	0%
8-10 years	1%	1%	Professional Degree	0%	0%
6-8 years	0%	0%	Post-Masters Cert	0%	0%
4-6 years	0%	27%	Master's Degree	0%	0%
2-4 years	17%	20%	Post-Bachelor Cert	0%	0%
1-2 years	23%	12%	Bachelors	0%	0%
6-12 months	28%	8%	AA or Equiv	0%	0%
3-6 months	6%	1%	Some College	8%	36%
1-3 months	1%	9%	Post-Secondary Certificate	26%	10%
0-1 month	6%	1%	High School Diploma or GED	26%	33%
None	11%	17%	No HSD or GED	38%	18%
Welders, Cutters, and Welder Fitters			Cabinetmakers and Bench Carpenters		
Most Common Educational/Training Requirement:					
Long-term on-the-job training			Long-term on-the-job training		
Job Zone Comparison					
2 - Job Zone Two: Some Preparation Needed			3 - Job Zone Three: Medium Preparation Needed		
Some previous work-related skill, knowledge, or experience may be helpful in these occupations, but usually is not needed. For example, a teller might benefit from experience working directly with the public, but an inexperienced person could still learn to be a teller with little difficulty.			Previous work-related skill, knowledge, or experience is required for these occupations. For example, an electrician must have completed three or four years of apprenticeship or several years of vocational training, and often must have passed a licensing exam, in order to perform the job.		
These occupations usually require a high school diploma and may require some vocational training or job-related course work. In some cases, an associate's or bachelor's degree could be needed.			Most occupations in this zone require training in vocational schools, related on-the-job experience, or an associate's degree. Some may require a bachelor's degree.		
Employees in these occupations need anywhere from a few months to one year of working with experienced employees.			Employees in these occupations usually need one or two years of training involving both on-the-job experience and informal training with experienced workers.		

## Tasks

Welders, Cutters, and Welder Fitters	Cabinetmakers and Bench Carpenters
Core Tasks	Core Tasks



## Generalized Work Activities:

- Inspecting Equipment, Structures, or Material - Inspecting equipment, structures, or materials to identify the cause of errors or other problems or defects.
- Identifying Objects, Actions, and Events - Identifying information by categorizing, estimating, recognizing differences or similarities, and detecting changes in circumstances or events.
- Getting Information - Observing, receiving, and otherwise obtaining information from all relevant sources.
- Communicating with Supervisors, Peers, or Subordinates - Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person.
- Evaluating Information to Determine Compliance with Standards - Using relevant information and individual judgment to determine whether events or processes comply with laws, regulations, or standards.

## Specific Tasks

## Occupation Specific Tasks:

- Adjust electric current and timing cycles of resistance welding machines to heat metals to bonding temperature.
- Align and clamp workpieces together, using rules, squares, or hand tools, or position items in fixtures, jigs, or vises.
- Brush flux onto joints of workpieces or dip braze rods into flux, to prevent oxidation of metal.
- Clean equipment parts, such as tips of soldering irons, using chemical solutions or cleaning compounds.
- Clean joints of workpieces with wire brushes or by dipping them into cleaning solutions.
- Clean workpieces to remove dirt and excess acid, using chemical solutions, files, wire brushes, or grinders.
- Connect hoses from torches to regulator valves and cylinders of oxygen and specified gas fuels.
- Cut carbon electrodes to specified sizes and shapes, using cutoff saws.
- Dip workpieces into molten solder, or place solder strips between seams and heat seams with irons, to bond items together.
- Examine seams for defects, and rework defective joints or broken parts.
- Grind, cut, buff, or bend edges of workpieces to be joined to ensure snug fit, using power grinders and hand tools.
- Guide torches and rods along joints of workpieces to heat them to brazing temperature, melt braze alloys, and bond workpieces together.
- Heat soldering irons or workpieces to specified temperatures for soldering, using gas flames or electric current.

## Generalized Work Activities:

- Getting Information - Observing, receiving, and otherwise obtaining information from all relevant sources.
- Controlling Machines and Processes - Using either control mechanisms or direct physical activity to operate machines or processes (not including computers or vehicles).
- Handling and Moving Objects - Using hands and arms in handling, installing, positioning, and moving materials, and manipulating things.
- Inspecting Equipment, Structures, or Material - Inspecting equipment, structures, or materials to identify the cause of errors or other problems or defects.
- Monitor Processes, Materials, or Surroundings - Monitoring and reviewing information from materials, events, or the environment, to detect or assess problems.

## Specific Tasks

## Occupation Specific Tasks:

- Apply masonite, formica, and vinyl surfacing materials.
- Attach parts and subassemblies together to form completed units, using glue, dowels, nails, screws, and/or clamps.
- Bore holes for insertion of screws or dowels, by hand or using boring machines.
- Cut timber to the right size and shape and trim parts of joints to ensure a snug fit, using hand tools such as planes, chisels, or wood files.
- Design furniture, using computer-aided drawing programs.
- Dip, brush, or spray assembled articles with protective or decorative finishes such as stain, varnish, paint, or lacquer.
- Discuss projects with customers, and draw up detailed specifications.
- Establish the specifications of articles to be constructed or repaired, and plan the methods and operations for shaping and assembling parts, based on blueprints, drawings, diagrams, or oral or written instructions.
- Estimate the amounts, types, and costs of needed materials.
- Install hardware such as hinges, handles, catches, and drawer pulls, using hand tools.
- Match materials for color, grain, and texture, giving attention to knots and other features of the wood.
- Measure and mark dimensions of parts on paper or lumber stock prior to cutting, following blueprints, to ensure a tight fit and quality product.
- Perform final touch-ups with sandpaper and steel wool.
- Produce and assemble components of articles such as store fixtures, office



gas flames or electric current.

- Melt and apply solder along adjoining edges of workpieces to solder joints, using soldering irons, gas torches, or electric-ultrasonic equipment.
- Melt and apply solder to fill holes, indentations, and seams of fabricated metal products, using soldering equipment.
- Melt and separate brazed or soldered joints to remove and straighten damaged or misaligned components, using hand torches, irons or furnaces.
- Place solder bars into containers, and turn knobs to specified positions to melt solder and regulate its temperature.
- Remove workpieces from fixtures, using tongs, and cool workpieces, using air or water.
- Remove workpieces from molten solder and hold parts together until color indicates that solder has set.
- Select torch tips, flux, and brazing alloys from data charts or work orders.
- Smooth soldered areas with alternate strokes of paddles and torches, leaving soldered sections slightly higher than surrounding areas for later filing.
- Sweat together workpieces coated with solder.
- Turn dials to set intensity and duration of ultrasonic impulses, according to work order specifications.
- Turn valves to start flow of gases, and light flames and adjust valves to obtain desired colors and sizes of flames.

#### Detailed Tasks

##### Detailed Work Activities:

- adjust welding equipment
- apply cleaning solvents
- apply flux to workpiece before soldering or brazing
- braze metal parts or components together
- clean or degrease weld, or parts to be welded or soldered
- examine products or work to verify conformance to specifications
- fabricate, assemble, or disassemble manufactured products by hand
- file, sand, grind, or polish metal or plastic objects
- identify properties of metals for repair or fabrication activities
- load or unload material or workpiece into machinery
- monitor the quantity of assembly output
- move or fit heavy objects
- perform safety inspections in industrial, manufacturing or repair setting
- position, clamp or assemble workpiece prior

equipment, cabinets, and high-grade furniture.

- Program computers to operate machinery.
- Reinforce joints with nails or other fasteners to prepare articles for finishing.
- Repair or alter wooden furniture, cabinetry, fixtures, paneling, and other pieces.
- Set up and operate machines, including power saws, jointers, mortisers, tenoners, molders, and shapers, to cut, mold, and shape woodstock and wood substitutes.
- Trim, sand, and scrape surfaces and joints to prepare articles for finishing.
- Verify dimensions, and check the quality and fit of pieces in order to ensure adherence to specifications.

#### Detailed Tasks

##### Detailed Work Activities:

- adjust production equipment/machinery setup
- build or install cabinets or related interior wood fixtures
- examine products or work to verify conformance to specifications
- fabricate, assemble, or disassemble manufactured products by hand
- lay out woodworking projects
- measure and mark reference points or cutting lines on workpieces
- monitor production machinery/equipment operation to detect problems
- move or fit heavy objects
- operate woodworking equipment/machinery
- perform safety inspections in manufacturing or industrial setting
- prepare building surfaces for paint, finishes, wallpaper, or adhesives
- read blueprints
- read specifications
- read technical drawings
- set up computer numerical control machines
- set up production equipment or machinery
- understand machine setup instructions
- understand technical operating, service or repair manuals
- use hand or power tools
- use hand or power woodworking tools
- use precision measuring tools or equipment

#### Technology - Examples

##### Computer aided design CAD software

- Computer aided design CAD software

##### Data base user interface and query software

- Data entry software

##### Electronic mail software



to welding

- preheat metal before welding, brazing, or soldering
- read blueprints
- read production layouts
- read technical drawings
- read work order, instructions, formulas, or processing charts
- sharpen metal objects
- solder metal parts or components together
- understand technical operating, service or repair manuals
- use acetylene welding/cutting torch
- use braze-welding equipment
- use hand or power tools
- use soldering equipment

#### Technology - Examples

##### Analytical or scientific software

- Scientific Software Group Filter Drain FD

##### Calendar and scheduling software

- OmniFleet Equipment Maintenance Management

##### Computer aided design CAD software

- EZ Pipe software

##### Project management software

- Recordkeeping software

#### Tools - Examples

- Wrenches
- Anvils
- Bandsaws
- Slitters
- Motorized cutting torches
- Calipers
- Desktop computers
- Underwater electrode holders
- Files
- Gas flow measurement instruments
- Forklifts
- Current converters
- Brazing equipment
- Goggles

- Microsoft Outlook

##### Facilities management software

- Computerized maintenance management system CMMS software

##### Project management software

- Computer estimation software

##### Spreadsheet software

- Microsoft Excel

#### Tools - Examples

- Adjustable hand wrenches
- Hand augers
- Awls
- Edge banders
- Bandsaws
- Bench dogs
- Bench vises
- T-bevels
- Biscuit joining machines
- Line borers
- Boring machines
- Locking C-clamps
- Dial calipers
- Angle dividers
- Tenoners
- Protective ear plugs
- Bastard flat files
- Safety goggles
- Claw hammers
- Bar clamps
- Braces and bits
- Band clamps
- Bowl lathes
- Precision levels
- Locking pliers



- Grinding machinery
- Hand chipping hammers
- Clamps
- Temperature measurement instruments
- Electric overhead hoists
- Hydraulic presses
- Impact wrenches
- Hydraulic jacks
- Ladders
- Laser printers
- Laser welders
- Lathes
- Levels
- Light trucks
- Hydraulic truck lifts
- Metal inert gas MIG welders
- Metal markers
- Punches
- Computerized numerical control CNC programmable welding robot controllers
- Micrometers
- Milling machines
- Nibblers
- Personal computers
- Pipe cutters
- Plasma welders
- Air drills
- Air chisels
- Air scalers
- Buffers
- Power chippers
- Power drills
- Power grinders
- Mallets
- Marking gauges
- Metal punches
- Digital micrometers
- Computerized numerical control CNC routers
- Moisture meters
- Paint application brushes
- Paint application rollers
- Paint spray guns
- Personal computers
- Block planes
- Plumb bobs
- Pneumatic nail guns
- Adjustable jigs
- Power drills
- Nail guns
- Jointers
- Laminate trimmers
- Belt sanders
- Chop saws
- Power screwguns
- Profile molders
- Heated putty knives
- Scrapers
- Steel rules
- Safety glasses
- Hand sanders
- Back saws
- Phillips head screwdrivers
- Marking knives
- Tool sharpeners
- Metal shears



- Cutoff saws
- Steamers
- Waterproof gloves
- Angle finders
- Pinchbars
- Comealongs
- Ratchets
- Self-contained breathing equipment
- Respirator hose masks
- Welding lenses
- Scaffolding
- Scribes
- Shears
- Socket sets
- Soldering irons
- Wire feed rate measurement instruments
- Squares
- Straightedges
- Metal benders
- Dies
- Fillet weld gauges
- Electric pipe threaders
- Hand pipe threaders
- Tungsten inert gas TIG welding equipment
- Two way radios
- Ultrasonic welding equipment
- Arc voltage measurement instruments
- Arc welders
- Underwater electrodes
- Direct current DC sources
- Face shields
- Welding tips

- Lacquer booths
- Combination squares
- Pneumatic staplers
- T-squares
- Measuring tapes
- Templates
- Spindle shapers
- Radial drills
- Burn-in knives
- Bowl gouges
- Drill presses



- Welding robots
- Rod ovens
- Electrode wires
- Dive suits
- Winches
- Power wire brushes
- Wire cutters
- Overhead cranes
- Brakes

### Labor Market Comparison

Maine Department of Labor.

Description	Welders, Cutters, and Welder Fitters	Cabinetmakers and Bench Carpenters	Difference
Median Wage	\$ 38,030	\$ 29,800	\$( 8,230)
10th Percentile Wage	\$ 22,680	\$ 21,100	\$( 1,580)
25th Percentile Wage	N/A	N/A	N/A
75th Percentile Wage	\$ 46,190	\$ 36,010	\$( 10,180)
90th Percentile Wage	\$ 50,780	\$ 41,280	\$( 9,500)
Mean Wage	\$ 38,260	\$ 31,210	\$( 7,050)
Total Employment - 2563	1,610	660	-950
Employment Base - 2006	1,691	903	-788
Projected Employment - 2572	1,816	627	-1,189
Projected Job Growth - 2006-2572	7.4 %	-30.6 %	-37.9 %
Projected Annual Openings - 2006-2572	49	27	-22
Special			

Special Occupations:

### National Job Posting Trends

Trend for Welders, Cutters, and Welder Fitters and Cabinetmakers and Bench Carpenters



## Programs

### Related Programs

Cabinet Maker and Millworker

Cabinetmaking and Millwork/Millwright. A program that prepares individuals to apply technical knowledge and skills to set up, operate and repair industrial woodworking machinery, and to use such machinery to design and fabricate wooden components and complete articles.

No information on schools for the program

## Maine Statewide Promotion Opportunities for Welders, Cutters, and Welder Fitters

O*NET Code	Title	Grand TORO	Job Zone	Employment	Median Wage	Difference	Growth	Annual Job Openings	Special
51-4121.06	Welders, Cutters, and Welder Fitters	100	2	1,610	\$38,030.00	\$0.00	7%	49	
51-4192.00	Lay-Out Workers, Metal and Plastic	85	2	180	\$43,870.00	\$5,840.00	-24%	3	
49-9044.00	Millwrights	81	3	830	\$41,280.00	\$3,250.00	-12%	11	
51-4121.07	Solderers and Brazers	80	2	1,610	\$38,030.00	\$0.00	7%	49	
51-4111.00	Tool and Die Makers	80	3	160	\$51,670.00	\$13,640.00	-11%	2	
51-9196.00	Paper Goods Machine Setters, Operators, and Tenders	79	2	910	\$38,230.00	\$200.00	-26%	23	
47-2011.00	Boilermakers	77	4	60	\$39,260.00	\$1,230.00	12%	3	
51-4041.00	Machinists	77	3	1,860	\$41,560.00	\$3,530.00	4%	35	



47-2082.00	Tapers	76	2	70	\$39,910.00	\$1,880.00	5%	3
49-9096.00	Riggers	76	3	250	\$39,140.00	\$1,110.00	-12%	2
47-2021.00	Brickmasons and Blockmasons	74	2	270	\$38,960.00	\$930.00	6%	10
49-9012.00	Control and Valve Installers and Repairers, Except Mechanical Door	74	3	170	\$47,860.00	\$9,830.00	-9%	3
49-9041.00	Industrial Machinery Mechanics	74	3	990	\$39,370.00	\$1,340.00	7%	25
51-4011.00	Computer-Controlled Machine Tool Operators, Metal and Plastic	73	2	720	\$40,490.00	\$2,460.00	6%	12
49-2094.00	Electrical and Electronics Repairers, Commercial and Industrial Equipment	73	3	440	\$49,450.00	\$11,420.00	-19%	15

Special Occupations:

### Top Industries for Cabinetmakers and Bench Carpenters

Industry	NAICS	% of Industry	Employment	Projected Employment	% Change
Wood kitchen cabinet and countertop manufacturing	337110	36.87%	54,960	60,851	10.72%
Self-employed workers, primary job	000601	11.98%	17,863	19,031	6.54%
Household and institutional furniture manufacturing	337120	11.28%	16,815	12,795	-23.91%
Other wood product manufacturing	321900	10.54%	15,712	14,806	-5.77%
Office furniture (including fixtures) manufacturing	337200	9.87%	14,718	13,839	-5.97%
Building material and supplies dealers	444100	3.03%	4,522	5,779	27.79%
Self-employed workers, secondary job	000602	1.98%	2,947	2,934	-0.45%
Veneer, plywood, and engineered wood product manufacturing	321200	1.06%	1,580	1,720	8.89%
Residential building construction	236100	0.94%	1,397	1,573	12.61%
Employment services	561300	0.74%	1,101	1,393	26.56%
Furniture stores	442100	0.73%	1,091	1,113	2.03%
Unpaid family workers, primary job	000701	0.59%	876	693	-20.89%
Lumber and other construction materials merchant wholesalers	423300	0.47%	707	812	14.86%
Motor vehicle body and trailer manufacturing	336200	0.39%	582	569	-2.15%
Nonresidential building construction	236200	0.26%	390	437	12.05%



### Top Industries for Welders, Cutters, and Welder Fitters

Industry	NAICS	% of Industry	Employment	Projected Employment	% Change
Architectural and structural metals manufacturing	332300	11.33%	46,347	52,658	13.62%
Agriculture, construction, and mining machinery manufacturing	333100	6.36%	26,009	25,834	-0.67%
Self-employed workers, primary job	000601	5.26%	21,505	24,372	13.33%
Motor vehicle body and trailer manufacturing	336200	5.12%	20,924	21,779	4.09%
Commercial and industrial machinery and equipment (except automotive and electronic) repair and maintenance	811300	4.38%	17,916	20,168	12.57%
Other general purpose machinery manufacturing	333900	3.83%	15,672	15,050	-3.97%
Boiler, tank, and shipping container manufacturing	332400	3.10%	12,686	12,161	-4.14%
Motor vehicle parts manufacturing	336300	3.03%	12,410	10,511	-15.31%
Machine shops	332710	3.03%	12,381	10,895	-12.00%
Other fabricated metal product manufacturing	332900	2.73%	11,163	10,522	-5.74%
Employment services	561300	2.58%	10,544	14,196	34.64%
Ship and boat building	336600	2.51%	10,285	12,246	19.07%
Ventilation, heating, air-conditioning, and commercial refrigeration equipment manufacturing	333400	2.39%	9,762	9,553	-2.14%
Nonresidential building construction	236200	2.03%	8,323	9,921	19.20%
Industrial machinery manufacturing	333200	1.31%	5,341	4,655	-12.85%

## Industry & Occupational Data Sources

TORQ Results: The TORQ Scores is based upon an proprietary algorithm applied against Knowledge, Skills and Ability levels and importance derived from O\*NET 12.

ASK Analysis, Experience & Education Levels and Tasks: O\*Net 12

Labor Market Comparisons Occupational Projections data from Maine Department of Labor

National Posting Trends Indeed.com

Labor Pool & Promotions Opportunities: Occupational Projections data from Maine Department of Labor

Top Industries: Occupational Employment Statistics program (U.S. Bureau of Labor Statistics)