



TORO Analysis of Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic to Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders

INPUT SECTION:

Transfer	Title	O* NET	Filters		
From Title:	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	51-4031.00	Abilities:	Importance Level: 50	Weight: 1
To Title:	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	51-4122.00	Skills:	Importance Level: 69	Weight: 1
Labor Market Area:	Maine Statewide		Knowledge:	Importance Level: 69	Weight: 1

OUTPUT SECTION:

Grand TORQ:		92
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Ability TORQ		Skills TORQ		Knowledge TORQ	
Level	94	Level	93	Level	89

Gaps To Narrow if Possible				Upgrade These Skills				Knowledge to Add			
Ability	Level	Gap	Impt	Skill	Level	Gap	Impt	Knowledge	Level	Gap	Impt
Problem Sensitivity	38	4	56	No Skills Upgrade Required!				No Knowledge Upgrades Required!			

LEVEL and IMPT (IMPORTANCE) refer to the Target Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders. GAP refers to level difference between Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic and Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders.

ASK ANALYSIS

Ability Level Comparison - Abilities with importance scores over 50

Description	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	Importance
Control Precision	50	46	75
Manual Dexterity	46	44	63
Information Ordering	45	45	62
Near Vision	44	41	58
Problem Sensitivity	34	38	56
Arm-Hand Steadiness	44	37	53

Skill Level Comparison - Abilities with importance scores over 69



Description	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	Importance
Knowledge Level Comparison - Knowledge with importance scores over 69			
Description	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	Importance

Experience & Education Comparison

Related Work Experience Comparison				Required Education Level Comparison			
Description	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders		Description	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	
10+ years	0%	0%		Doctoral	0%	0%	
8-10 years	0%	0%		Professional Degree	0%	0%	
6-8 years	0%	2%		Post-Masters Cert	0%	0%	
4-6 years	0%	6%		Master's Degree	0%	0%	
2-4 years	0%	13%		Post-Bachelor Cert	0%	5%	
1-2 years	11%	9%		Bachelors	0%	5%	
6-12 months	17%	10%		AA or Equiv	0%	11%	
3-6 months	9%	8%		Some College	0%	0%	
1-3 months	19%	0%		Post-Secondary Certificate	1%	11%	
0-1 month	8%	2%		High School Diploma or GED	79%	49%	
None	33%	47%		No HSD or GED	18%	16%	

Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders
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Most Common Educational/Training Requirement:

Moderate-term on-the-job training	Moderate-term on-the-job training
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Job Zone Comparison	
<p>2 - Job Zone Two: Some Preparation Needed</p> <p>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.</p> <p>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.</p> <p>Employees in these occupations need anywhere from a few months to one year of working with experienced employees.</p>	<p>2 - Job Zone Two: Some Preparation Needed</p> <p>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.</p> <p>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.</p> <p>Employees in these occupations need anywhere from a few months to one year of working with experienced employees.</p>

Tasks

Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders
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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.
- 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:

- Adjust ram strokes of presses to specified lengths, using hand tools.
- Clean and lubricate machines.
- Examine completed workpieces for defects such as chipped edges and marred surfaces, and sort defective pieces according to types of flaws.
- Grind out burrs and sharp edges, using portable grinders, speed lathes, and polishing jacks.
- Hand-form, cut, or finish workpieces, using tools such as table saws, hand sledges, and anvils.
- Hone cutters with oilstones to remove nicks.
- Install, align, and lock specified punches, dies, cutting blades or other fixtures in rams or beds of machines, using gauges, templates, feelers, shims, and hand tools.
- Load workpieces, plastic material, or chemical solutions into machines.
- Lubricate workpieces with oil.
- Mark identifying data on workpieces.
- Measure completed workpieces to verify conformance to specifications, using micrometers, gauges, calipers, templates, or rulers.
- Place workpieces on cutting tables, manually or using hoists, cranes, or sledges.
- Plan sequences of operations, applying knowledge of physical properties of

Core Tasks

Generalized Work Activities:

- 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.
- 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).
- 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:

- Add chemicals and materials to workpieces or machines to facilitate bonding or to cool workpieces.
- Anneal finished workpieces to relieve internal stress.
- Assemble, align, and clamp workpieces into holding fixtures to bond, heat-treat, or solder fabricated metal components.
- Clean, lubricate, maintain, and adjust equipment to maintain efficient operation, using air hoses, cleaning fluids, and hand tools.
- Compute and record settings for new work, applying knowledge of metal properties, principles of welding, and shop mathematics.
- Conduct trial runs before welding, soldering or brazing; make necessary adjustments to equipment.
- Correct problems by adjusting controls, or by stopping machines and opening holding devices.
- Devise and build fixtures and jigs used to hold parts in place during welding, brazing, or soldering.
- Dress electrodes, using tip dressers, files, emery cloths, or dressing wheels.
- Fill hoppers and position spouts to direct flow of flux, or manually brush flux onto seams of workpieces.
- Give directions to other workers regarding machine setup and use.
- Immerse completed workpieces into water or acid baths to cool and clean components.



workpiece materials.

- Position guides, stops, holding blocks, or other fixtures to secure and direct workpieces, using hand tools and measuring devices.
- Position, align, and secure workpieces against fixtures or stops on machine beds or on dies.
- Preheat workpieces, using heating furnaces or hand torches.
- Read work orders and production schedules to determine specifications, such as materials to be used, locations of cutting lines, and dimensions and tolerances.
- Remove housings, feed tubes, tool holders, and other accessories in order to replace worn or broken parts such as springs and bushings.
- Replace defective blades or wheels, using hand tools.
- Scribe reference lines on workpieces as guides for cutting operations, according to blueprints, templates, sample parts, or specifications.
- Select, clean, and install spacers, rubber sleeves, and cutters on arbors.
- Set blade tensions, heights, and angles to perform prescribed cuts, using wrenches.
- Set stops on machine beds, change dies, and adjust components, such as rams or power presses, when making multiple or successive passes.
- Set up, operate, or tend machines to saw, cut, shear, slit, punch, crimp, notch, bend, or straighten metal or plastic material.
- Sharpen dulled blades, using bench grinders, abrasive wheels, or lathes.
- Start machines, monitor their operations, and record operational data.
- Test and adjust machine speeds and actions, according to product specifications, and using gauges and hand tools.
- Thread ends of metal coils from reels through slitters, and secure ends on recoilers.
- Turn controls to set cutting speeds, feed rates, and table angles for specified operations.
- Turn valves to start flow of coolant against cutting areas and to start airflow that blows cuttings away from kerfs.

Detailed Tasks

Detailed Work Activities:

- adjust production equipment/machinery setup
- attach or mark identification onto products or containers
- clean equipment or machinery

components.

- Inspect, measure, or test completed metal workpieces to ensure conformance to specifications, using measuring and testing devices.
- Lay out, fit, or connect parts to be bonded, calculating production measurements as necessary.
- Load or feed workpieces into welding machines in order to join or bond components.
- Mark weld points and positions of components on workpieces, using rules, squares, templates, and scribes.
- Observe meters, gauges, and machine operations to ensure that soldering or brazing processes meet specifications.
- Prepare metal surfaces and workpieces, using hand-operated equipment such as grinders, cutters, or drills.
- Read blueprints, work orders, and production schedules to determine product or job instructions and specifications.
- Record operational information on specified production reports.
- Remove workpieces and parts from machinery after work is complete, using hand tools.
- Select torch tips, alloys, flux, coil, tubing, and wire, according to metal types and thicknesses, data charts, and records.
- Select, position, align, and bolt jigs, holding fixtures, guides, and stops onto machines, using measuring instruments and hand tools.
- Set dials and timing controls to regulate electrical current, gas flow pressure, heating/cooling cycles, and shut-off.
- Set up, operate, and tend welding machines that join or bond components to fabricate metal products or assemblies.
- Start, monitor, and adjust robotic welding production lines.
- Tend auxiliary equipment used in welding processes.
- Transfer components, metal products, and assemblies, using moving equipment.
- Turn and press knobs and buttons, or enter operating instructions into computers to adjust and start welding machines.

Detailed Tasks

Detailed Work Activities:

- adjust production equipment/machinery setup
- braze metal parts or components together
- clean equipment or machinery
- clean or degrease weld, or parts to be welded or soldered
- demonstrate or explain assembly or use



- examine products or work to verify conformance to specifications
- fabricate, assemble, or disassemble manufactured products by hand
- install equipment or attachments on machinery or related structures
- load or unload material or workpiece into machinery
- maintain or repair industrial or related equipment/machinery
- measure, weigh, or count products or materials
- monitor production machinery/equipment operation to detect problems
- move or fit heavy objects
- operate hoist, winch, or hydraulic boom
- operate metal or plastic fabricating equipment/machinery
- perform safety inspections in manufacturing or industrial setting
- plan or organize work
- read blueprints
- read production layouts
- read specifications
- read technical drawings
- read work order, instructions, formulas, or processing charts
- recognize characteristics of metals
- 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 precision measuring tools or equipment

- of equipment
- examine products or work to verify conformance to specifications
- fabricate, assemble, or disassemble manufactured products by hand
- install equipment or attachments on machinery or related structures
- lay out machining, welding or precision assembly projects
- load or unload material or workpiece into machinery
- maintain production or work records
- monitor production machinery/equipment operation to detect problems
- move or fit heavy objects
- operate hoist, winch, or hydraulic boom
- operate metal or plastic fabricating equipment/machinery
- perform safety inspections in manufacturing or industrial setting
- position, clamp or assemble workpiece prior to welding
- preheat metal before welding, brazing, or soldering
- read blueprints
- read production layouts
- read specifications
- read technical drawings
- read work order, instructions, formulas, or processing charts
- recognize characteristics of metals
- set up computer numerical control machines
- set up production equipment or machinery
- solder metal parts or components together
- test manufactured products or materials
- understand technical operating, service or repair manuals
- use acetylene welding/cutting torch
- use hand or power tools
- use non-destructive test equipment
- use precision measuring tools or equipment
- use spot or tack welding techniques
- weld together metal parts, components, or structures

Tools - Examples

- Adjustable widemouth pliers
- Bench vises
- Hand scrapers
- Gas welding torches
- C clamps



- Dial calipers
- Desktop computers
- Side cutting pliers
- Face masks
- Files
- Arc welding equipment
- Undercut gauges
- Safety goggles
- Ball peen hammers
- Hand clamps
- Power hoists
- Hydraulic booms
- Heating furnaces
- Laser cutters
- Laser-beam machines
- Walk-behind lift trucks
- Product loading equipment
- Vise grip pliers
- Magnifiers
- Micrometers
- Workpiece positioning jigs
- Chipping hammers
- Power grinders
- Safety gloves
- Center punches
- Rulers
- Slip-joint pliers
- Soldering machines
- Layout squares
- Measuring tapes
- Fillet weld gauges
- Tongs



- Cold-welding machines
- Welding electrodes
- Welding helmets
- Welding tip cleaning files
- Welding torch tips
- Brazing robots
- Tip dressers
- Spot welding guns
- Hydraulic winches
- Wire brushes

Labor Market Comparison

Description	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	Difference
Median Wage	\$ 27,500	\$ 36,960	\$ 9,460
10th Percentile Wage	\$ 17,200	\$ 23,370	\$ 6,170
25th Percentile Wage	N/A	N/A	N/A
75th Percentile Wage	\$ 31,510	\$ 44,750	\$ 13,240
90th Percentile Wage	\$ 37,720	\$ 49,220	\$ 11,500
Mean Wage	\$ 27,250	\$ 36,640	\$ 9,390
Total Employment - 2007	450	120	-330
Employment Base - 2006	461	157	-304
Projected Employment - 2016	395	160	-235
Projected Job Growth - 2006-2016	-14.3 %	1.9 %	16.2 %
Projected Annual Openings - 2006-2016	11	3	-8

National Job Posting Trends



Trend for Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic

Trend for Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders



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

Recommended Programs

Welder/Welding Technologist

Welding Technology/Welder. A program that prepares individuals to apply technical knowledge and skills to join or cut metal surfaces. Includes instruction in arc welding, resistance welding, brazing and soldering, cutting, high-energy beam welding and cutting, solid state welding, ferrous and non-ferrous materials, oxidation-reduction reactions, welding metallurgy, welding processes and heat treating, structural design, safety, and applicable codes and standards.

Institution	Address	City	URL
Eastern Maine Community College	354 Hogan Rd	Bangor	www.emcc.edu
Eastern Maine Community College	354 Hogan Rd	Bangor	www.emcc.edu
Eastern Maine Community College	354 Hogan Rd	Bangor	www.emcc.edu
Wasington County Community College	One College Drive	Calais	www.wccc.me.edu

Maine Statewide Promotion Opportunities for Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic

O*NET Code	Title	Grand TORQ	Job Zone	Employment	Median Wage	Difference	Growth	Annual Job Openings



51-4031.00	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	100	2	450	\$27,500.00	\$0.00	-14%	11
51-4193.00	Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic	93	2	120	\$32,160.00	\$4,660.00	16%	5
51-4122.00	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	92	2	120	\$36,960.00	\$9,460.00	2%	3
51-5023.00	Printing Machine Operators	91	2	790	\$29,710.00	\$2,210.00	-3%	18
51-9032.00	Cutting and Slicing Machine Setters, Operators, and Tenders	84	2	710	\$31,350.00	\$3,850.00	-23%	12
51-9041.00	Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	84	2	260	\$28,330.00	\$830.00	-7%	5
51-9191.00	Cementing and Gluing Machine Operators and Tenders	84	1	80	\$27,620.00	\$120.00	-15%	2
51-2041.00	Structural Metal Fabricators and Fitters	83	3	680	\$36,030.00	\$8,530.00	5%	15
51-9196.00	Paper Goods Machine Setters, Operators, and Tenders	83	2	910	\$38,230.00	\$10,730.00	-26%	23
51-5021.00	Job Printers	82	3	140	\$31,890.00	\$4,390.00	-10%	2
51-2031.00	Engine and Other Machine Assemblers	82	3	20	\$29,010.00	\$1,510.00	-45%	1
51-4034.00	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic	82	3	110	\$34,350.00	\$6,850.00	-9%	2
51-4121.07	Solderers and Brazers	82	2	1,610	\$38,030.00	\$10,530.00	7%	49



51-2021.00	Coil Winders, Tapers, and Finishers	81	2	90	\$31,910.00	\$4,410.00	-53%	1
51-4023.00	Rolling Machine Setters, Operators, and Tenders, Metal and Plastic	81	2	0	\$33,460.00	\$5,960.00	0%	0

Top Industries for Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders

Industry	NAICS	% in Industry	Employment	Projected Employment	% Change
Motor vehicle parts manufacturing	336300	19.38%	10,236	9,164	-10.47%
Architectural and structural metals manufacturing	332300	7.67%	4,053	4,867	20.11%
Agriculture, construction, and mining machinery manufacturing	333100	6.00%	3,167	3,325	5.00%
Self-employed workers, primary job	000601	5.61%	2,961	3,548	19.81%
Motor vehicle body and trailer manufacturing	336200	4.84%	2,556	2,812	10.04%
Other general purpose machinery manufacturing	333900	4.26%	2,251	2,285	1.52%
Ventilation, heating, air-conditioning, and commercial refrigeration equipment manufacturing	333400	3.79%	2,001	2,070	3.45%
Other fabricated metal product manufacturing	332900	3.68%	1,942	1,936	-0.36%
Ship and boat building	336600	3.18%	1,679	2,113	25.87%
Machine shops	332710	2.65%	1,398	1,301	-6.97%
Boiler, tank, and shipping container manufacturing	332400	2.47%	1,302	1,320	1.34%
Electrical equipment manufacturing	335300	1.82%	964	921	-4.45%
Spring and wire product manufacturing	332600	1.78%	939	782	-16.75%
Employment services	561300	1.55%	817	1,163	42.33%
Forging and stamping	332100	1.55%	818	720	-12.00%

Top Industries for Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic

Industry	NAICS	% in Industry	Employment	Projected Employment	% Change
Employment services	561300	10.95%	29,744	36,424	22.46%
Motor vehicle parts manufacturing	336300	10.08%	27,394	19,628	-28.35%
Architectural and structural metals manufacturing	332300	8.80%	23,910	22,983	-3.88%
Forging and stamping	332100	6.81%	18,517	13,040	-29.57%
Plastics product manufacturing	326100	5.31%	14,440	13,775	-4.60%



Other fabricated metal product manufacturing	332900	3.61%	9,822	7,833	-20.26%
Ventilation, heating, air-conditioning, and commercial refrigeration equipment manufacturing	333400	2.93%	7,972	6,600	-17.21%
Metalworking machinery manufacturing	333500	2.35%	6,374	4,697	-26.32%
Other general purpose machinery manufacturing	333900	1.82%	4,945	4,018	-18.76%
Boiler, tank, and shipping container manufacturing	332400	1.82%	4,936	4,003	-18.90%
Machine shops	332710	1.79%	4,876	3,630	-25.55%
Steel product manufacturing from purchased steel	331200	1.79%	4,869	3,878	-20.35%
Spring and wire product manufacturing	332600	1.76%	4,776	3,182	-33.37%
Agriculture, construction, and mining machinery manufacturing	333100	1.69%	4,593	3,859	-15.97%
Metal and mineral (except petroleum) merchant wholesalers	423500	1.59%	4,325	4,275	-1.16%