



TORO Analysis of Printing Machine Operators to Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders

INPUT SECTION:

Transfer	Title	O*NET	Filters		
From Title:	Printing Machine Operators	51-5023.00	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:		84
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Ability TORQ		Skills TORQ		Knowledge TORQ	
Level	84	Level	88	Level	81

Gaps To Narrow if Possible				Upgrade These Skills				Knowledge to Add			
Ability	Level	Gap	Imp	Skill	Level	Gap	Imp	Knowledge	Level	Gap	Imp
Problem Sensitivity	38	8	56	No Skills Upgrade Required!				No Knowledge Upgrades Required!			
Manual Dexterity	44	7	63								
Information Ordering	45	7	62								
Control Precision	46	5	75								
Arm-Hand Steadiness	37	3	53								

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

ASK ANALYSIS

Ability Level Comparison - Abilities with importance scores over 50

Description	Printing Machine Operators	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	Importance
Control Precision	41	46	75
Manual Dexterity	37	44	63
Information Ordering	38	45	62
Near Vision	45	41	58
Problem Sensitivity	30	38	56



Arm-Hand Steadiness	34	37	53
Skill Level Comparison - Abilities with importance scores over 69			
Description	Printing Machine Operators	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	Importance
Knowledge Level Comparison - Knowledge with importance scores over 69			
Description	Printing Machine Operators	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	Importance

Experience & Education Comparison			
Related Work Experience Comparison		Required Education Level Comparison	
Description	Printing Machine Operators	Printing Machine Operators	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders
10+ years	0%	0%	0%
8-10 years	3%	0%	0%
6-8 years	0%	2%	0%
4-6 years	7%	6%	5%
2-4 years	24%	13%	5%
1-2 years	13%	9%	11%
6-12 months	3%	10%	0%
3-6 months	6%	8%	11%
1-3 months	0%	0%	49%
0-1 month	0%	2%	85%
None	39%	47%	1%
Printing Machine Operators		Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	
Most Common Educational/Training Requirement:			
Moderate-term on-the-job training		Moderate-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. 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.		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. 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.	

Tasks



Printing Machine Operators

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).
- Getting Information - Observing, receiving, and otherwise obtaining information from all relevant sources.
- 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.

Specific Tasks

Occupation Specific Tasks:

- Apply glue or tape to holes in screens in order to repair leaks.
- Attach cloth to take-up rollers, placing it in feeding position and threading it through equipment as necessary.
- Blend and test paint, inks, stains, and solvents according to types of material being printed and work order specifications.
- Clean and lubricate printing machines and components, using oil, solvents, brushes, rags, and hoses.
- Coordinate printing activities with activities of workers who set up, clean, and feed machines.
- Correct misprinted materials, using materials such as ink eradicators or solvents.
- Direct and monitor activities of workers feeding, inspecting, and tending printing machines and materials.
- Examine job orders to determine details such as quantities to be printed, production times, stock specifications, colors, and color sequences.
- Input instructions in order to program automated machinery, using a computer keyboard.
- Inspect and examine printed products for print clarity, color accuracy, conformance to specifications, and external defects.

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

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.



- Load, position, and adjust unprinted materials on holding fixtures or in equipment loading and feeding mechanisms.
- Maintain records of goods produced, supplies used, production costs, and machine maintenance and repair activities.
- Measure screens, and use measurements to center and align screens in proper positions and sequences on machines, using gauges and hand tools.
- Monitor and control operation of auxiliary equipment used to assemble and finish products.
- Monitor feeding, printing, and racking processes of presses in order to maintain specified operating levels and to detect malfunctions; make any necessary adjustments.
- Monitor stocks of materials such as paper, ink, and metal in order to maintain supplies during equipment operation.
- Operate equipment at slow speed to ensure proper ink coverage, alignment, and registration.
- Pack and label cartons, boxes, or bins of finished products.
- Place printed items in ovens to dry or set ink.
- Place spools of thread or wire on holders, and thread through machines.
- Position knives at specified distances from edges of plastic material in order to trim excess material from edges.
- Pour ink into pans, and smooth paint onto stencils, using flat-bladed knives.
- Pour or spread paint, ink, color compounds, and other materials into reservoirs, troughs, hoppers, or color holders of printing units, making measurements and adjustments to control color and viscosity.
- Prepare and treat lithographic plates with various chemicals to clean and preserve plates and fix images.
- Provide assistance in the design and layout of forms and materials to be printed.
- Push buttons, turn handles or move controls and levers to start and control printing machines.
- Remove printed materials from presses, using handtrucks, electric lifts, or hoists, and transport them to drying, storage or finishing areas.
- Repair, maintain, or adjust equipment.
- Reposition printing plates, adjust pressure rolls, or otherwise adjust machines to improve print quality, using knobs, handwheels, or hand tools.
- Requisition supplies, materials, and equipment, and receive stock when it arrives.
- Select and install printing plates, rollers,

Machine Setup and Use.

- Immerse completed workpieces into water or acid baths to cool and clean 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



feed guides, gauges, screens, stencils, type, dies, and cylinders in machines according to specifications, using hand tools.

- Set and adjust speed, temperature, ink flow, and positions and pressure tolerances of equipment.
- Squeeze or spread ink on plates, pads, or rollers, using putty knives, brushes, or sponges.
- Thin printing compounds, using specified thinners.

Detailed Tasks

Detailed Work Activities:

- adjust production equipment/machinery setup
- assure quality control in printing processes
- attach or mark identification onto products or containers
- clean equipment or machinery
- collect payment
- demonstrate or explain assembly or use of equipment
- determine film exposure settings
- determine specifications
- develop film or other photographic medium
- direct and coordinate activities of workers or staff
- distinguish colors
- examine products or work to verify conformance to specifications
- fabricate printing plates
- identify color or balance
- 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
- 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
- mix printing solutions
- monitor production machinery/equipment operation to detect problems
- move or fit heavy objects
- operate bindery equipment
- operate cameras
- operate fabric printing equipment
- operate graphic reproduction equipment

- clean or degrease weld, or parts to be welded or soldered
- demonstrate or explain assembly or use 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

Technology - Examples

Data base user interface and query software

- Data entry software

Electronic mail software

- Email software



- operate hoist, winch, or hydraulic boom
- operate printing equipment/machinery
- operate scanner
- perform safety inspections in manufacturing or industrial setting
- process photographic prints
- read production layouts
- read specifications
- read work order, instructions, formulas, or processing charts
- receive customer orders
- restore photographs
- retouch negatives or prints
- set page layout or composition
- set up production equipment or machinery
- strip negatives
- understand technical operating, service or repair manuals
- use color analyzer
- use densitometer
- use desktop publishing software
- use hand or power tools
- use precision measuring tools or equipment

Technology - Examples

Calendar and scheduling software

- Job scheduling software

Data base user interface and query software

- Printing management system software

Electronic mail software

- Microsoft Outlook

Inventory management software

- Inventory tracking software

Spreadsheet software

- Microsoft Excel

Word processing software

- Microsoft Word

Tools - Examples

- Adjustable wrenches
- Materials conveyors
- Conductivity indicators
- Densitometers
- Desktop computers
- Flexo presses

Industrial control software

- Tool center point TCP setting software

Spreadsheet software

- Spreadsheet software

Word processing software

- Word processing software

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



- Grease guns
- Claw hammers
- Hand trucks
- Packing gauges
- Hoists
- Pallet jacks
- Letter presses
- Electric lifts
- Vise grip pliers
- Hand-held magnifiers
- Micrometers
- Offset printing equipment
- Paper drills
- Paper joggers
- Perforators
- Personal computers
- pH indicators
- Digital copiers
- Gravure presses
- Platemaking equipment
- Folding equipment
- Collating equipment
- Cutting equipment
- Multicolor presses
- Putty knives
- Ratchets
- Phillips head screwdrivers
- Screen printing presses
- Stackers
- Stapling machines
- Measuring tapes
- Strappers

- 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	Printing Machine Operators	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	Difference
Median Wage	\$ 29,710	\$ 36,960	\$ 7,250
10th Percentile Wage	\$ 21,270	\$ 23,370	\$ 2,100
25th Percentile Wage	N/A	N/A	N/A
75th Percentile Wage	\$ 36,080	\$ 44,750	\$ 8,670
90th Percentile Wage	\$ 44,010	\$ 49,220	\$ 5,210
Mean Wage	\$ 30,870	\$ 36,640	\$ 5,770
Total Employment - 2007	790	120	-670
Employment Base - 2006	820	157	-663
Projected Employment - 2016	798	160	-638
Projected Job Growth - 2006-2016	-2.7 %	1.9 %	4.6 %
Projected Annual Openings - 2006-2016	18	3	-15

National Job Posting Trends

Trend for Printing Machine Operators

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

Job Trends from Indeed.com

— Printing Machine Operator — Welding Machine Operator



Data from [Indeed](#)**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 Printing Machine Operators

O* NET Code	Title	Grand TORQ	Job Zone	Employment	Median Wage	Difference	Growth	Annual Job Openings
51-5023.00	Printing Machine Operators	100	2	790	\$29,710.00	\$0.00	-3%	18
51-4193.00	Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic	86	2	120	\$32,160.00	\$2,450.00	16%	5
51-4122.00	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	84	2	120	\$36,960.00	\$7,250.00	2%	3
51-9196.00	Paper Goods Machine Setters, Operators, and Tenders	81	2	910	\$38,230.00	\$8,520.00	-26%	23
51-4034.00	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic	80	3	110	\$34,350.00	\$4,640.00	-9%	2
51-9071.06	Gem and Diamond Workers	80	2	220	\$32,520.00	\$2,810.00	7%	7
51-5021.00	Job Printers	79	3	140	\$31,890.00	\$2,180.00	-10%	2
51-4121.07	Solderers and Brazers	79	2	1,610	\$38,030.00	\$8,320.00	7%	49



51-9032.00	Cutting and Slicing Machine Setters, Operators, and Tenders	78	2	710	\$31,350.00	\$1,640.00	-23%	12
51-2021.00	Coil Winders, Tapers, and Finishers	77	2	90	\$31,910.00	\$2,200.00	-53%	1
51-9023.00	Mixing and Blending Machine Setters, Operators, and Tenders	77	1	420	\$36,040.00	\$6,330.00	-9%	7
51-9121.00	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	77	2	850	\$38,860.00	\$9,150.00	-26%	19
51-9122.00	Painters, Transportation Equipment	77	2	320	\$32,230.00	\$2,520.00	2%	8
51-4023.00	Rolling Machine Setters, Operators, and Tenders, Metal and Plastic	76	2	0	\$33,460.00	\$3,750.00	0%	0
51-4121.06	Welders, Cutters, and Welder Fitters	76	2	1,610	\$38,030.00	\$8,320.00	7%	49

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 Printing Machine Operators

Industry	NAICS	% in Industry	Employment	Projected Employment	% Change
Printing and related support activities	323100	50.92%	100,610	90,254	-10.29%
Newspaper publishers	511110	7.59%	14,990	12,841	-14.33%
Converted paper product manufacturing	322200	6.58%	12,998	10,908	-16.08%
Advertising and related services	541800	3.23%	6,387	7,207	12.83%
Plastics product manufacturing	326100	2.76%	5,460	5,788	6.00%
Specialized design services	541400	1.92%	3,793	5,076	33.81%
Textile and fabric finishing and fabric coating mills	313300	1.66%	3,277	2,021	-38.33%
Self-employed workers, primary job	000601	1.45%	2,864	3,052	6.54%
Employment services	561300	1.41%	2,783	3,522	26.56%
Colleges, universities, and professional schools, public and private	611300	0.89%	1,761	1,970	11.87%
Animal slaughtering and processing	311600	0.86%	1,706	1,947	14.13%
Paper and paper product merchant wholesalers	424100	0.80%	1,585	1,693	6.83%
Self-employed workers, secondary job	000602	0.74%	1,465	1,459	-0.45%
Cut and sew apparel manufacturing	315200	0.64%	1,266	534	-57.77%
Clothing stores	448100	0.61%	1,203	1,263	4.97%