



TORQ Analysis of Printing Machine Operators to Bindery Workers

INPUT SECTION:

| Transfer | Title | O*NET | Filters | | |
|--------------------|----------------------------|------------|------------|----------------------|-----------|
| From Title: | Printing Machine Operators | 51-5023.00 | Abilities: | Importance Level: 50 | Weight: 1 |
| To Title: | Bindery Workers | 51-5011.00 | Skills: | Importance Level: 69 | Weight: 1 |
| Labor Market Area: | Maine Statewide | | Knowledge: | Importance Level: 69 | Weight: 1 |

OUTPUT SECTION:

| | | |
|--------------------|--|----|
| Grand TORQ: | | 83 |
|--------------------|--|----|

| Ability TORQ | | Skills TORQ | | Knowledge TORQ | |
|--------------|----|-------------|----|----------------|----|
| Level | 81 | Level | 86 | Level | 83 |

| Gaps To Narrow if Possible | | | | Upgrade These Skills | | | | Knowledge to Add | | | |
|----------------------------|-------|-----|------|--------------------------|-------|-----|------|---------------------------------|-------|-----|------|
| Ability | Level | Gap | Impt | Skill | Level | Gap | Impt | Knowledge | Level | Gap | Impt |
| Control Precision | 52 | 11 | 77 | Quality Control Analysis | 63 | 7 | 73 | No Knowledge Upgrades Required! | | | |
| Arm-Hand Steadiness | 45 | 11 | 55 | | | | | | | | |
| Extent Flexibility | 38 | 10 | 50 | | | | | | | | |
| Manual Dexterity | 44 | 7 | 67 | | | | | | | | |
| Perceptual Speed | 37 | 7 | 50 | | | | | | | | |
| Written Comprehension | 38 | 4 | 52 | | | | | | | | |
| Information Ordering | 41 | 3 | 67 | | | | | | | | |
| Problem Sensitivity | 34 | 4 | 50 | | | | | | | | |

LEVEL and IMPT (IMPORTANCE) refer to the Target Bindery Workers. GAP refers to level difference between Printing Machine Operators and Bindery Workers.

ASK ANALYSIS

| Ability Level Comparison - Abilities with importance scores over 50 | | | |
|---|--|---|--|
| Description | Printing Machine Operators | Bindery Workers | Importance |
| Control Precision | 41  |  52 |  77 |
| Information Ordering | 38  |  41 |  67 |



| Manual Dexterity | 37 | 44 | 67 |
|---|----------------------------|-----------------|------------|
| Arm-Hand Steadiness | 34 | 45 | 55 |
| Written Comprehension | 34 | 38 | 52 |
| Problem Sensitivity | 30 | 34 | 50 |
| Perceptual Speed | 30 | 37 | 50 |
| Extent Flexibility | 28 | 38 | 50 |
| Near Vision | 45 | 42 | 50 |
| Skill Level Comparison - Abilities with importance scores over 69 | | | |
| Description | Printing Machine Operators | Bindery Workers | Importance |
| Quality Control Analysis | 56 | 63 | 73 |
| Operation and Control | 66 | 62 | 71 |
| Equipment Maintenance | 63 | 56 | 69 |
| Knowledge Level Comparison - Knowledge with importance scores over 69 | | | |
| Description | Printing Machine Operators | Bindery Workers | Importance |

| Experience & Education Comparison | | | | | |
|--|----------------------------|-----------------|--|----------------------------|-----------------|
| Related Work Experience Comparison | | | Required Education Level Comparison | | |
| Description | Printing Machine Operators | Bindery Workers | Description | Printing Machine Operators | Bindery Workers |
| 10+ years | 0% | 0% | Doctoral | 0% | 0% |
| 8-10 years | 3% | 0% | Professional Degree | 0% | 0% |
| 6-8 years | 0% | 0% | Post-Masters Cert | 0% | 0% |
| 4-6 years | 7% | 2% | Master's Degree | 0% | 0% |
| 2-4 years | 24% | 7% | Post-Bachelor Cert | 0% | 0% |
| 1-2 years | 13% | 24% | Bachelors | 0% | 0% |
| 6-12 months | 3% | 16% | AA or Equiv | 0% | 0% |
| 3-6 months | 6% | 0% | Some College | 5% | 0% |
| 1-3 months | 0% | 0% | Post-Secondary Certificate | 8% | 0% |
| 0-1 month | 0% | 3% | High School Diploma or GED | 85% | 56% |
| None | 39% | 44% | No HSD or GED | 1% | 42% |
| Printing Machine Operators | | | Bindery Workers | | |
| Most Common Educational/Training Requirement: | | | | | |
| Moderate-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. | | | 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.

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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

Bindery Workers

Core Tasks

Generalized Work Activities:

- 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.
- Controlling Machines and Processes - Using either control mechanisms or direct physical activity to operate machines or processes (not including computers or vehicles).
- 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.
- 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:

- Clean work areas, and maintain equipment and work stations, using hand tools.
- Crease or compress signatures before affixing covers; then place paper jackets on finished books.
- Examine stitched, collated, bound, and unbound product samples for defects such as imperfect bindings, ink spots, torn or loose pages, and loose and uncut threads.
- Feed books and related articles such as periodicals and pamphlets into binding machines, following specifications.
- Fill glue reservoirs, turn switches to activate heating elements, and adjust flow of glue and speed of conveyors.
- Fill machine paper feeds.
- Install and adjust bindery machine devices, such as knives, guides, rollers, rounding forms, creasing rams, and clamps, in order to accommodate sheets, signatures, or books of specified sizes.



- 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.
- 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 driving storage or

signatures, or books of specified sizes, using hand tools.

- Lubricate and clean machine parts, and make minor repairs in order to keep machines in working condition.
- Maintain records of daily production, using specified forms.
- Mount and secure rolls or reels of wire, cloth, paper, or other material onto machine spindles.
- Move controls to adjust and activate bindery machines.
- Observe and monitor machine operations to detect malfunctions and to determine whether adjustments are needed.
- Open machines and remove and replace damaged covers and books, using hand tools.
- Punch holes in paper sheets, and fasten sheets, signatures, or other material, using hand or machine punches or staplers.
- Read work orders to determine setup specifications and instructions.
- Record production sheet information such as the amount of time spent on specific tasks.
- Remove broken wire pieces from machines, and load machines with new spools of wire.
- Remove printed material or finished products from machines or conveyors, wrap products in plastic, and stack them on pallets or skids or pack them in boxes.
- Secure reels of stitching wire on spindles, and thread wire through feeding, cutting, stitch forming, and driving mechanisms to load stitcher heads for stapling.
- Set machine controls to adjust lengths and thicknesses of folds, stitches, or cuts, to synchronize speed of feeding devices and stitching, and to adjust tension on creasing blades and folding rollers.
- Set up, or set up and operate, machines that perform binding operations such as pressing, folding, and trimming on books and related articles.
- Start machines and make trial runs to verify accuracy of machine setups.
- Stitch or glue endpapers, bindings, and signatures to attach them.
- Stock supplies such as signatures, books, or paper.
- Stop machines, cut threads that connect books, and stack separated books.
- Thread spirals in perforated holes of items to be bound, using spindles or rollers.
- Train workers to set up, operate, and use automatic bindery machines.

Detailed Tasks



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, 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,

Detailed Work Activities:

- adjust production equipment/machinery setup
- apply adhesives, caulking, sealants, or coatings
- clean equipment or machinery
- clean rooms or work areas
- collate printed materials
- 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
- 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
- monitor production machinery/equipment operation to detect problems
- move or fit heavy objects
- operate collating machine
- operate printing equipment/machinery
- package goods for shipment or storage
- perform safety inspections in manufacturing or industrial setting
- read work order, instructions, formulas, or processing charts
- set up production equipment or machinery
- use hand or power tools
- wrap products

Technology - Examples



- 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
- 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
- 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

Labor Market Comparison

| Description | Printing Machine Operators | Bindery Workers | Difference |
|---------------------------------------|----------------------------|-----------------|------------|
| Median Wage | \$ 29,710 | \$ 26,130 | \$(3,580) |
| 10th Percentile Wage | \$ 21,270 | \$ 17,110 | \$(4,160) |
| 25th Percentile Wage | N/A | N/A | N/A |
| 75th Percentile Wage | \$ 36,080 | \$ 31,490 | \$(4,590) |
| 90th Percentile Wage | \$ 44,010 | \$ 36,420 | \$(7,590) |
| Mean Wage | \$ 30,870 | \$ 26,320 | \$(4,550) |
| Total Employment - 2007 | 790 | 350 | -440 |
| Employment Base - 2006 | 820 | 366 | -454 |
| Projected Employment - 2016 | 798 | 293 | -505 |
| Projected Job Growth - 2006-2016 | -2.7 % | -19.9 % | -17.3 % |
| Projected Annual Openings - 2006-2016 | 18 | 5 | -13 |

National Job Posting Trends

Trend for Printing Machine Operators

Trend for Bindery Workers



Job Trends from Indeed.com

— Printing Machine Operator — Bindery Worker



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

Recommended Programs

Graphic Communications, Other

Graphic Communications, Other. Any instructional program in graphic communications not listed above.

No schools available for the program

Shoe, Boot and Leather Repairer

Shoe, Boot and Leather Repair. A program that prepares individuals to apply technical knowledge and skills to repair all types of footwear, including replacement and mending of worn parts; repairing orthopedic footwear, refinishing and dyeing leather; and repairing other leather goods such as handbags, belts, and luggage.

No schools available for the program

Leatherworkers and Upholsterers, Other

Leatherworking and Upholstery, Other. Any instructional program in leatherworking and upholstering not listed above.

No schools available for the program

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 |
| 51-9071.06 | Gem and Diamond Workers | 80 | 2 | 220 | \$32,520.00 | \$2,810.00 | 7% | 7 |
| 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 |
| 51-5021.00 | 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 Bindery Workers

| Industry | NAICS | % in Industry | Employment | Projected Employment | % Change |
|---|--------|---------------|------------|----------------------|----------|
| Printing and related support activities | 323100 | 75.67% | 49,078 | 34,998 | -28.69% |
| Employment services | 561300 | 4.66% | 3,020 | 3,822 | 26.56% |
| Converted paper product manufacturing | 322200 | 2.30% | 1,489 | 1,125 | -24.47% |
| Advertising and related services | 541800 | 1.69% | 1,095 | 1,112 | 1.55% |
| Newspaper publishers | 511110 | 1.53% | 993 | 765 | -22.90% |



| | | | | | |
|--|--------|-------|-----|-----|---------|
| Self-employed workers, primary job | 000601 | 1.32% | 853 | 818 | -4.12% |
| Specialized design services | 541400 | 0.81% | 528 | 636 | 20.43% |
| Colleges, universities, and professional schools, public and private | 611300 | 0.42% | 271 | 273 | 0.69% |
| Federal government, excluding postal service | 919999 | 0.36% | 234 | 199 | -14.92% |
| Paper and paper product merchant wholesalers | 424100 | 0.33% | 214 | 206 | -3.85% |
| Other support services | 561900 | 0.29% | 189 | 233 | 23.30% |
| Management of companies and enterprises | 551100 | 0.17% | 109 | 113 | 3.75% |
| State government, excluding education and hospitals | 929200 | 0.15% | 100 | 88 | -11.68% |
| Elementary and secondary schools, public and private | 611100 | 0.11% | 71 | 68 | -5.16% |
| Industrial machinery manufacturing | 333200 | 0.11% | 70 | 52 | -26.26% |

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% |