
Printing Machine Operators

(O*NET 51-5023.00)

Significant Points

- Most printing machine operators are trained on the job.
- Retirements of older press operators are expected to create openings for skilled workers.
- Rising demand for customized print jobs will mean those skilled in digital printing operations will have the best job opportunities.

Nature of the Work

Printing machine operators, also known as press operators, prepare, operate, and maintain printing presses. Duties of printing machine operators vary according to the type of press they operate. Traditional printing methods, such as offset lithography, gravure, flexography, and letterpress, use a plate or roller that carries the final image that is to be printed and copies the image to paper. In addition to the traditional printing processes, plateless or nonimpact processes are coming into general use. Plateless processes—including digital, electrostatic, and ink-jet printing—are used for copying, duplicating, and document and specialty printing. Plateless processes usually are done by quick printing shops and smaller in-house printing shops, but increasingly are being used by commercial printers for short-run or customized printing jobs.

Machine operators' jobs differ from one shop to another because of differences in the types and sizes of presses. Small commercial shops can be operated by one person and tend to have relatively small presses, which print only one or two colors at a time. Large newspaper, magazine, and book printers use giant "in-line web" presses that require a crew of several press operators and press assistants.

After working with prepress technicians (who are covered in the *Handbook* statement on prepress technicians and workers) to identify and resolve any potential problems with a job, printing machine operators prepare machines for printing. To prepare presses, operators install the printing plate with the images to be printed and adjust the pressure at which the machine prints. Then they ink the presses, load paper, and adjust the press to the paper size. Operators ensure that paper and ink meet specifications, and adjust the flow of ink to the inking rollers accordingly. They then feed paper through the press cylinders and adjust feed and tension controls. New digital technology, in contrast, is able to automate much of this work.

While printing presses are running, printing machine operators monitor their operation and keep the paper feeders well stocked. They make adjustments to manage ink distribution, speed, and temperature in the drying chamber, if the press has one. If paper tears or jams and the press stops, which can happen with some offset presses, operators quickly correct the problem to minimize downtime. Similarly, operators working with other high-speed presses constantly look for problems, and when necessary make quick corrections to avoid expensive losses of paper and ink. Throughout the run, operators

must regularly pull sheets to check for any printing imperfections. Most printers have, or will soon have, presses with computers and sophisticated instruments to control press operations, making it possible to complete printing jobs in less time. With this equipment, printing machine operators set up, monitor, and adjust the printing process on a control panel or computer monitor, which allows them to control the press electronically.

In most shops, machine operators also perform preventive maintenance. They oil and clean the presses and make minor repairs.

Work environment. Operating a press can be physically and mentally demanding, and sometimes tedious. Printing machine operators are on their feet most of the time. Often, operators work under pressure to meet deadlines. Most printing presses are capable of high printing speeds, and adjustments must be made quickly to avoid waste. Pressrooms are noisy, and workers in certain areas wear ear protection. Working with press machinery can be hazardous, but the threat of accidents has decreased with newer computerized presses that allow operators to make most adjustments from a control panel.

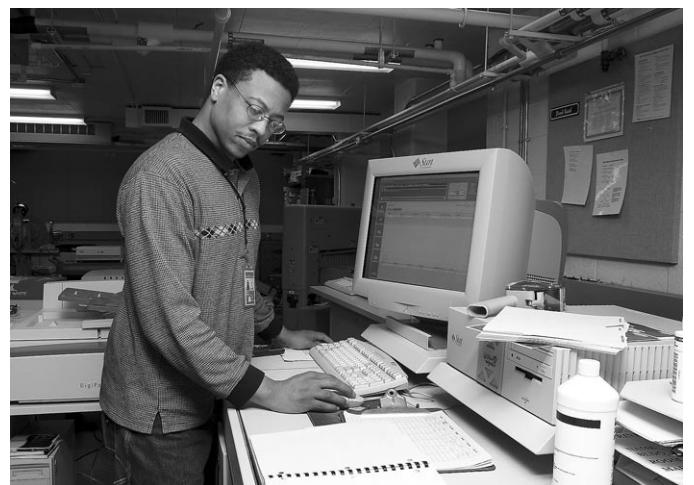
Many printing machine operators, particularly those who work for newspapers, work weekends, nights, and holidays as many presses operate continually. They also may work overtime to meet deadlines. The average operator worked 40 hours per week in 2006.

Training, Other Qualifications, and Advancement

Although employers prefer that beginners complete a formal apprenticeship or a postsecondary program in printing equipment operation, most printing machine operators are trained on the job. Attention to detail and familiarity with electronics and computers are essential for operators.

Education and training. Beginning printing machine operators load, unload, and clean presses. With time and training, they may become fully qualified to operate that type of press. Operators can gain experience on more than one kind of printing press during the course of their career.

Experienced operators will periodically receive retraining and skill updating. For example, printing plants that change from sheet-fed offset presses to digital presses have to retrain



Printing machine operators execute production orders through an increasingly automated process.

Projections data from the National Employment Matrix

Occupational Title	SOC Code	Employment, 2006	Projected employment, 2016	Change, 2006-16	
				Number	Percent
Printing machine operators	51-5023	198,000	186,000	-11,000	-6

NOTE: Data in this table are rounded. See the discussion of the employment projections table in the *Handbook* introductory chapter on *Occupational Information Included in the Handbook*.

the entire press crew because skill requirements for the two types of presses are different.

Apprenticeships for printing machine operators, once the dominant method for preparing for this occupation, are becoming less prevalent. When they are offered by the employer, they include on-the-job instruction and some related classroom training or correspondence school courses.

Formal postsecondary programs in printing equipment operation offered by technical and trade schools, community colleges, and universities are growing in importance. Postsecondary courses in printing provide the theoretical and technical knowledge needed to operate advanced equipment that employers look for in an entry-level worker. Some postsecondary school programs require two years of study and award an associate degree.

Because of technical developments in the printing industry, courses in chemistry, electronics, color theory, and physics are helpful in secondary or postsecondary programs.

Other qualifications. Persons who wish to become printing machine operators need mechanical aptitude to make press adjustments and repairs. Workers need good vision and attention to detail to locate and fix problems with print jobs. Oral and written communication skills also are required. Operators should possess the mathematical skills necessary to compute percentages, weights, and measures, and to calculate the amount of ink and paper needed to do a job. Operators now also need basic computer skills to work with newer printing machines.

Certification and advancement. As printing machine operators gain experience, they may advance in pay and responsibility by working on a more complex printing press. For example, operators who have demonstrated their ability to work with a one-color sheet-fed press may be trained to operate a four-color sheet-fed press. Voluntarily earning a formal certification may also help advance a career in printing. An operator also may advance to pressroom supervisor and become responsible for an entire press crew. In addition, printing machine operators can draw on their knowledge of press operations to become cost estimators, providing estimates of printing jobs to potential customers.

Employment

Printing machine operators held about 198,000 jobs in 2006. Half of all operator jobs were in printing and related support activities. Paper manufacturers and newspaper publishers also were large employers. Additional jobs were in advertising agencies, employment services firms, and colleges and universities that do their own printing.

The printing and newspaper publishing industries are two of the most geographically dispersed in the United States. While printing machine operators can find jobs throughout the coun-

try, large numbers of jobs are concentrated in large printing centers such as Chicago, Los Angeles-Long Beach, New York, Minneapolis-St. Paul, Philadelphia, Boston, and Washington, DC.

Job Outlook

Employment of printing machine operators is projected to decline moderately through 2016, as newer printing presses require fewer operators. Despite this, job opportunities are expected to be favorable because a large number of these workers are expected to retire over the next decade. The best opportunities will be available to skilled operators.

Employment change. Employment of printing machine operators is expected to decline moderately by six percent over the 2006-16 decade even as the output of printed materials is expected to increase. Employment will fall because of increasing automation in the printing industry and because of the outsourcing of some production to foreign countries.

Book and magazine circulation will increase as school enrollments rise and niche publications continue to enjoy success. Additional growth will also come from the increasing ability of the printing industry to profitably print smaller quantities, which should widen the market for printed materials as production costs decline.

Commercial printing will continue to be driven by increased expenditures for print advertising materials. New marketing techniques are leading advertisers to increase spending on messages targeted to specific audiences, and should continue to require the printing of a wide variety of catalogs, direct mail enclosures, newspaper inserts, and other kinds of print advertising.

However, employment will not grow at the same pace as output because increased use of new computerized printing equipment will require fewer operators. This will especially be true with the increasing automation of the large printing presses used in the newspaper industry. In addition, some companies are lowering their printing costs by having their work printed out of the country when it does not need to be completed quickly. New business practices within the publishing industry, such as printing-on-demand and electronic publishing, will reduce the size of print runs, further moderating output.

Job prospects. Opportunities for employment in printing machine operation should be favorable. Retirements of older printing machine operators and the need for workers trained on increasingly computerized printing equipment will create many job openings over the next decade. For example, small printing jobs will increasingly be run on sophisticated high-speed digital printing equipment that requires a complex set of operator skills, such as knowledge of database management software. Those who complete postsecondary training pro-

grams in printing and who are comfortable with computers will have the best employment opportunities.

Earnings

Median hourly earnings of printing machine operators were \$14.90 in May 2006, as compared to \$13.16 per hour for all production occupations. The middle 50 percent earned between \$11.11 and \$19.49 an hour. The lowest 10 percent earned less than \$8.84, and the highest 10 percent earned more than \$24.23 an hour. Median hourly earnings in the industries employing the largest numbers of printing machine operators in May 2006 were:

Newspaper, periodical, book, and directory publishers	\$17.27
Converted paper product manufacturing.....	16.37
Printing and related support activities.....	15.55
Plastics product manufacturing.....	13.81
Advertising and related services	11.95

The basic wage rate for a printing machine operator depends on the geographic area in which the work is located and on the size and complexity of the printing press being operated.

Related Occupations

Other workers who set up and operate production machinery include machine setters, operators, and tenders—metal and

plastic; bookbinders and bindery workers; and various precision machine operators.

Sources of Additional Information

Details about apprenticeships and other training opportunities may be obtained from local employers, such as newspapers and printing shops, local offices of the Graphic Communications Conference of the International Brotherhood of Teamsters, local affiliates of Printing Industries of America/Graphic Arts Technical Foundation, or local offices of the State employment service.

For general information about printing machine operators, contact:

➤ Graphic Communications Conference of the International Brotherhood of Teamsters, 1900 L St.NW., Washington, DC 20036-5007.

For information on careers and training in printing and the graphic arts contact:

➤ NPES The Association for Suppliers of Printing Publishing, and Converting Technologies, 1899 Preston White Dr., Reston, VA 20191-4367.

Internet: <http://www.npes.org/education/index.html>

➤ Printing Industry of America/Graphic Arts Technical Foundation, 200 Deer Run Rd., Sewickley, PA 15143.

➤ Graphic Arts Education and Research Foundation, 1899 Preston White Dr., Reston, VA 20191-5468.

Internet: <http://www.makeyourmark.org>