

Set and operate lithographic printing machines

Overview

This standard is for printers using lithographic printing machinery. It is aimed mainly at printers who use small one- and two- colour lithographic printing machines up to B3 size but is also available for larger sheet-size machines.

Lithographic printing machines are found in many workplaces, including commercial printing companies, copy shops and in plant departments. For the purpose of this standard, the lithographic printing machine can have any number of printing standards from one upwards.

Traditionally, offset printing machines used metal plates and required ink and water to print. Modern machines can run on various plate substrates and are also able to run 'waterless' when using suitable plates and inks.

Modern machines sometimes have plate imaging heads on the press that create image plate material automatically fed onto the plate cylinder at the beginning of each job. These presses are sometimes referred to as 'digital' presses, but they are primarily lithographic presses with digital imaging capability.

This standard requires the operator to be able to prepare the small offset lithographic machine for printing, check the output is satisfactory and, if it is, run the machine and maintain quality of output.

If problems should occur, such as mis-register or colour variation, they should be dealt with by the operator. Machine faults, particularly those affecting the quality of output, may need additional support from colleagues. The operator must quickly identify faults that cause the output to fall below an acceptable quality and deal with the problem with minimum waste of substrate and time.

There are various methods for maintaining quality, ranging from the experienced eye of an operator matching to a hard proof, to the use of spectrophotometers and densitometers that read colour bars to check that the required density of ink is being printed, or that dot gain is controlled within acceptable standards. The operator is expected to be able to competently use whichever method is required by his/her company.

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Performance criteria

You must be able to:

Prepare a lithographic printing machine for production

1. comply with health and safety requirements and procedures at all times
2. obtain specifications and requirements of the items to be produced following standard operating procedures
3. obtain equipment and materials required to carry out the job following standard operating procedures
4. check equipment is set up and in good working order following standard operating procedures and any manufacturer's instructions
5. check all materials required are to specification and free from faults
6. fit plates to plate cylinders, including any plate packing following standard operating procedures
7. install ink to meet specifications
8. check fount solution is formulated and up to level in troughs following standard operating procedures
9. check blankets are mounted and tightened following standard operating procedures
10. place substrate and sufficient make-ready sheets into feeders following standard operating procedures
11. set feeders and delivery for size of sheets following standard operating procedures
12. set front lays and side lays to meet specifications
13. set impression pressure for the thickness of substrates to be printed
14. ink up ink rollers and pre-dam any fount roller sleeves to meet specifications
15. balance ink and water to meet specifications
16. make adjustments to the machine settings as necessary to achieve the required job specification and quality standards
17. report if specifications or quality standards cannot be met to the appropriate person(s)
18. report any machine faults which it is not your job to correct**

Run a lithographic printing machine

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19. *run lithographic printing machines at optimum speeds following standard operating procedures*
20. *maintain supply of materials and consumables throughout following standard operating procedures*

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- 21. check quality standards and job specifications are met*
- 22. record production and quality assurance details*
- 23. remove of waste following standard operating procedures*
- 24. stack work using approved methods **

Assist in fault finding and correction on a lithographic printing machine

- 25. identify machinery faults following standard operating procedures
- 26. identify and correct machine faults which it is your job to correct
- 27. report faults which are not your job to correct or are not corrected by the action you take
- 28. help colleagues who are correcting faults on your machine
- 29. check machines are safe to operate, once faults are corrected

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Knowledge and understanding

You need to know and understand:

The Law as it affects printing

1. copyright and ownership of images
2. forgery
3. data protection **

Ethical Issues relevant to printing

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4. *confidentiality**

Health and Safety

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5. *our duties and responsibilities for health and safety as defined by any specific legislation covering your job role*
6. *manufacturer's health and safety requirements relevant to your job*
7. *how to stop a machine in the event of an emergency*

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Communication

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8. *how to communicate with colleagues*
9. *how to communicate with customers **

Workplace policy and practice

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10. *workplace objectives, priorities, standards and procedures*
11. *the range of work carried out in the workplace **

The identification and assessment of printing options

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12. *the stages in the printing process from pre-press to printed product **

Time and Resources

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13. *how to maximise productivity **

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The operation of equipment

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*14. the operation of offset lithographic printing machinery**

Printing

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*15. the principles of offset lithographic printing **

The causes and treatment of common faults

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16. raw material faults

17. processing faults

18. machine faults

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Administrative procedures

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19. recording and reporting

*20. product labelling **

Environmental

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21. any specific environmental legislation that covers processes in your company

*22. control of pollution **

Quality Assurance and Control

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23. techniques for controlling quality

*24. equipment for controlling quality in offset lithographic printing **

Problem Solving

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25. sources of information

*26. techniques for assessing machine faults **

Materials

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- 27. the types and characteristics of paper, board and other commonly used substrates*
- 28. the types and characteristics of inks and coatings*
- 29. maintaining the quality of materials during storage and handling**

Cleaning, Lubrication and Maintenance

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- 30. the principal activities involved with machine cleaning, lubrication and maintenance*
- 31. roles and responsibilities for cleaning, lubrication and maintenance*
- 32. machine faults and how they can be rectified*
- 33. the maintenance plans for machines which you operate*
- 34. which components wear or become degraded over time*
- 35. the choice and use of suitable cleaning agents and lubricants*
- 36. what parts of the machine you are allowed to clean, lubricate and maintain **

Proofing

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- 37. the principal types of proof and their role in the printing process*

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