



Australian Government

ICPPRN513 Set up for specialised flexographic printing

Release: 1

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Modification History

Release	Comments
Release 1	This version first released with ICP Printing and Graphic Arts Training Package Version 1.0.

Application

This unit describes the skills and knowledge required to set up machines for specialised flexographic printing.

It applies to individuals required to set up for specialised colour jobs and who have a good knowledge of substrates and press settings.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Printing

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Confirm non-routine job specifications	1.1 Job requirements are read and interpreted from job documentation or production control system 1.2 Set up is planned and carried out correctly in minimum time, with minimum wastage 1.3 Availability of all job related components is checked 1.4 Proofed job is checked for conformance with job specifications
2. Select and prepare inks and solvents for non-routine job	2.1 Inks and solvents are selected according to job specifications and end-user requirements 2.2 Quality and suitability of inks and solvents are checked and appropriate action is taken 2.3 Inks and solvents are prepared according to work health and

ELEMENT	PERFORMANCE CRITERIA
	safety (WHS) requirements, and manufacturer's/supplier's instructions with suitable precautions to minimise waste 2.4 Correct colour and weight/volume of ink are mixed and viscosities checked and modified according to press requirements and non-routine job specifications 2.5 Ink formula and approved colour draw downs are appropriately recorded 2.6 Inks and solvents are appropriately labelled, handled and stored according to manufacturer's/supplier's instructions and relevant hazardous liquids storage regulations
3. Set up machine for specialised flexographic printing	3.1 Flexographic plate cylinders are installed and register adjustments centred OR 3.2 Sleeves are installed in press and register adjustments made OR 3.3 Plate mounting sheets are mounted on cylinders in press, and register adjustments made 3.4 Plate cylinders are gauged up or pre-set to impression 3.5 Anilox rollers are selected to suit individual colour and plate reproduction requirements for each unit 3.6 Appropriate ink metering system is selected for each unit 3.7 Inking system is set up and roller nips/blades are set correctly 3.8 Ink circulation is maintained at correct level 3.9 Viscosities are adjusted according to job specifications 3.10 Air volume and drier temperatures are selected to suit inks, substrate, solvents, and according to job specifications 3.11 Air volume is adjusted between colours to maximise drying and minimise air overspill
4. Conduct proof run	4.1 Material to be used for proof is organised correctly 4.2 Press is set up and operated according to WHS guidelines 4.3 Print impressions are set to minimum kiss impression 4.4 Web tensions are correctly set at unwind, between stations and rewind 4.5 Print is checked for register 4.6 Drying is checked as sufficient to key ink to the substrate

ELEMENT	PERFORMANCE CRITERIA
	4.7 Viscosities are adjusted to obtain the correct colour at proof speed
5. Organise proof inspection and/or testing	5.1 Proof is visually inspected and/or tested or laboratory testing is organised according to enterprise procedures 5.2 Production does not commence without client approval or authority where appropriate
6. Troubleshoot machinery and material problems	6.1 Corrective or preventive action is recommended and implemented where appropriate 6.2 Changes are communicated to relevant personnel in a logical and easily understood manner 6.3 Changes are monitored to confirm improvement to production efficiency

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Performance Criteria	Description
Reading	1.1, 1.4, 2.1-2.4, 2.6, 3.9, 3.10	Recognises and interprets text to establish job requirements from information contained within relevant instructions, procedures and specifications
Writing	2.5, 2.6, 5.2	- Completes workplace records and labels accurately and according to requirements - Considers context and audience when composing texts
Oral Communication	5.2, 6.2	Participates effectively in spoken interactions using appropriate vocabulary, questioning and listening techniques to gain approvals or provide information
Numeracy	2.4, 3.8-3.11	Interprets and analyses a range of mathematical information used in familiar and routine tasks
Navigate the world of work	2.3, 2.6, 4.2, 5.1, 5.2	- Complies with legislative requirements and follows organisational policies and procedures relevant to own role - Recognises boundaries of own role responsibilities
Interact with others	5.2, 6.2	- Collaborates with others to complete tasks according to requirements - Follows accepted communication practices and

		protocols when seeking approval
Get the work done	1.2-1.4, 2.1-2.6, 3.1-3.11, 4.1-4.7, 5.1, 6.1, 6.3	- Plans, evaluates, identifies and assembles resources required to complete tasks - Determines priorities and sequences steps involved in complex tasks - Takes responsibility for addressing predictable and unpredictable problems in familiar work contexts - Evaluates effectiveness of decisions to identify opportunities for improvement - Reads data from electronic monitoring and control systems

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
ICPPRN513 Set up for specialised flexographic printing	ICPPR513A Set up for specialised flexographic printing	Updated to meet Standards for Training Packages	Equivalent unit

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a74b7a0f-a253-47e3-8be0-5d426e24131d>

Assessment Requirements for ICPPRN513 Set up for specialised flexographic printing

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Performance Evidence

Evidence of the ability to:

- correctly set up a flexographic printing machine for a specialised job on TWO occasions using different substrates and including at least two in-line processes) according to the manufacturer's and job specifications, enterprise procedures and performance criteria
- safely conduct a proof run and adjust settings to ensure production speeds are attained
- find and use information relevant to the task from a variety of information sources.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline production problems that can eventuate if job specifications are not read and/or understood
- identify the person to discuss production problems with
- list work health and safety (WHS) factors to consider when mounting and proofing flexographic plates
- discuss the most common cause of photopolymer plates crazing on the image side
- explain the importance of printing plate resiliency
- describe the main advantage of using thin photopolymer plates in process printing
- list faults that may be found on new plates
- describe the type of solvents to use on photopolymer plates
- explain what V-block mounting is
- describe how V-block mounting is achieved
- list benefits of optical mounting
- outline the purpose of binding plates after mounting
- explain possible print faults that can be eliminated by using cushion mount

- explain any WHS factors to be considered when installing printing cylinders or sleeves
- describe precautions to ensure plates and cylinders or sleeves are not damaged during installation
- outline checks to ensure plates and cylinders or sleeves have been installed correctly
- discuss WHS precautions for webbing up the machine
- explain how to determine position of the reel
- describe how the substrate is pulled into the machine
- explain the result of insufficient unwind tension
- discuss the result of excessive unwind tension
- describe the function of the 'dancer' roller on a web machine
- explain the function of the positive input ventilation (PIV) unit
- discuss the result of adjustments to the positive input ventilation (PIV) unit
- describe the function of the lay-on roller
- discuss the effect of excessive lay-on roller pressure
- describe the effect of the web not being spliced correctly
- explain how the particular web viewing device functions
- outline WHS precautions for setting up the delivery
- explain how the web is controlled in the rewind unit
- outline the result of incorrect rewind tension
- discuss remedial steps to take if there is a possibility of the ink marking in the rewind
- explain the use of air blast play in the delivery of sheets
- discuss WHS precautions for preparing inks and additives
- outline how to determine an ink's suitability for the printing process
- explain special end-use requirements that may be necessary
- outline the main function of a pigmented extender used in flexographic printing
- describe the effect of adding plasticisers to flexographic inks
- explain why other additives are used in flexographic inks
- explain the range, in seconds, for Zahn cup measurements
- describe the effect foaming has in a Zahn cup when measuring ink viscosity
- explain the recommended pH range when printing with aqueous inks
- outline precautions to minimise waste when preparing ink
- explain the shelf life of most inks
- identify conditions relevant to storage of inks and additives
- describe conventions for labelling mixed inks
- list WHS factors to consider when setting up the machine
- explain the advantage of centring all machine controls
- list checks to make on cylinders and gears
- outline checks to perform prior to cylinder or sleeve installation
- explain the angle chamber blades should be set at
- discuss the main advantage of gauging up and dry register prior to printing a job
- discuss cell count of the anilox roller for printing solids

- outline why water treatment additives should be used in a central impression drum and chill roller coolant system
- list advantages of laser engraved ceramic anilox rollers
- describe three things relating to the anilox roller that a roller scope measures
- explain possible reasons for anilox wear
- outline the type of job that is printed using a hexagonal cell configuration
- describe the recommended web temperature when printing polypropylene film
- explain the method of drying used when printing on polythene by the flexographic process
- list factors affecting the drying rate of liquid inks
- identify factors that affect drying of aqueous inks
- explain the operating range of UV lamps
- explain why it is necessary to graduate drying speeds of each progressive colour, so that first-down colours dry faster than subsequent colours
- explain why in flexographic printing, the colour strength increases as the press speed increases
- identify possible causes of a decrease in web tension
- describe the result of increasing rewind tension after the roll has been partially rewound
- explain the major cause of a telescopic roll
- list print characteristics related to excessive printing pressure
- outline causes of picking when printing multicoloured work
- explain print faults from using an over-reduced ink
- discuss problems that can cause lateral streaks showing up in uneven printing
- describe causes of moire patterns when printing by the flexographic process
- explain what happens when air is trapped under mounted plates
- describe which instrument is used to identify retained solvent trapped in the print
- explain the purpose of taking dyne readings
- explain the purpose of the crinkle test when testing an ink
- outline the result if an excessive final drying temperature was used when printing polypropylene film
- explain what ink property can be adjusted to reduce dot gain
- discuss the effect of using the ink returning from the ink fountain when checking viscosity for ink while using ink pumps
- list problems that result from excessive use of slow solvents
- explain the effect of the 'yield value' of ink on the ink transfer of halftone dots
- discuss why laminating inks, once printed, appear dull and easy to scratch
- explain the result of excessive print area tension
- identify some of the problems associated with cold seals
- identify the location of machine manuals, safety and other documentation that are relevant to this task, where they are kept, and describe the information included in them.

Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the printing field of work and include access to a flexographic press.

Assessors must satisfy NVR/AQTF assessor requirements.

Links

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