Australian Government

Department of Education, Employment and Workplace Relations

# ICPPR313C Set up for basic flexographic printing

**Revision Number: 1**

# ICPPR313C Set up for basic flexographic printing

## Modification History

Not applicable.

## Unit Descriptor

| | |
|---|---|
| **Unit descriptor** | This unit describes the performance outcomes, skills and knowledge required to set up machines for routine flexographic printing. |

## Application of the Unit

| | |
|---|---|
| **Application of the unit** | This unit requires the individual to set up flexographic printing machines. The individual will conduct a proof run and adjust settings to ensure production speeds are attained.<br>Mounting and proofing plates is covered in ICPPR211C Mount and proof flexographic plates for basic printing. |

## Licensing/Regulatory Information

Not applicable.

## Pre-Requisites

| | | |
|---|---|---|
| **Prerequisite units** | | |
| | | |
| | | |

# Employability Skills Information

| | |
|---|---|
| **Employability skills** | This unit contains employability skills. |

# Elements and Performance Criteria Pre-Content

| | |
|---|---|
| Elements describe the essential outcomes of a unit of competency. | Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide. |

# Elements and Performance Criteria

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| 1. Confirm routine job specifications | 1.1. Job requirements are read and interpreted from job documentation or production control system<br>1.2. Set up is carried out correctly in minimum time with minimum wastage<br>1.3. Availability of all job related components is checked<br>1.4. Proofed job is checked for conformance with job specifications |
| 2. Set up routine reel system (OR Element 3) | 2.1. Reels are checked for treatment levels, coatings, printing side and age of product<br>2.2. Unwind reels are secured on reel shaft according to job specifications<br>2.3. Reels are correctly positioned on unwind stand according to job specifications<br>2.4. Correctly cut cores are positioned and mounted securely on rewind shafts<br>2.5. Press is webbed for single-sided surface print according to job specifications<br>2.6. Edge guide is centred and set according to job specifications<br>2.7. Unwind tension is set to suit ***substrate*** according to job specifications<br>2.8. Rewind tension is set to suit substrate according to job specifications<br>2.9. Nip rollers are set according to job specifications<br>2.10. PIV (Positively Infinitely Variable) drive is set for appropriate tensioning of substrate |
| 3. Set up routine sheet system (OR Element 2) | 3.1. Feeder is set up and adjusted according to job specifications<br>3.2. Sheet pick-up and transportation system is set up and adjusted according to job specifications<br>3.3. Transfer systems are set up and adjusted according to job specifications<br>3.4. Delivery is set up and adjusted according to job specifications<br>3.5. ***Substrate*** is removed from stacker according to job specifications<br>3.6. Sheet transfer and control system is set up and adjusted according to job specifications<br>3.7. Set off/marking prevention devices are set up and |

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | adjusted according to job specifications |
| 4. Select and prepare inks and solvents | 4.1. ***Inks*** and solvents are selected according to ***routine*** job specifications and end-user requirements<br>4.2. Quality and suitability of inks and solvents are checked and appropriate action is taken<br>4.3. Inks and solvents are prepared according to OHS requirements, and manufacturer's/supplier's instructions with suitable precautions to minimise waste<br>4.4. Correct colour and weight/volume of ink are mixed and viscosities checked and modified according to press requirements and routine job specifications<br>4.5. Ink formula and approved colour draw downs appropriately recorded<br>4.6. Inks and solvents are appropriately labelled, handled and stored according to manufacturer's/supplier's instructions and the relevant hazardous liquids storage regulations |
| 5. Set up machine for basic flexographic printing | 5.1. Flexographic plate cylinders are installed and register adjustments centred OR<br>5.2. Sleeves are installed in press and register adjustments made OR<br>5.3. Plate mounting sheets are mounted on cylinders in press and register adjustments made<br>5.4. Plate cylinders are gauged up or pre-set to impression<br>5.5. Inking system is set up and roller nips/blades are set correctly<br>5.6. Ink circulation is maintained at correct level and flow for ***machine*** requirements<br>5.7. Viscosities are adjusted according to job specifications<br>5.8. Air volume and drier temperatures or curing systems are selected to suit inks, substrate, solvents and according to job specifications<br>5.9. Air volume is adjusted between colours to maximise drying and minimise air overspill |
| 6. Set up in-line units for basic process(es) | 6.1. Minor ***in-line*** printing/converting/binding units are set up for basic process(es) and adjusted to suit machine requirements and job specifications<br>6.2. Assistance is given in the set up of major in-line printing/converting/binding units. (Note: if entire set |

| ELEMENT | PERFORMANCE CRITERIA |
|---|---|
| | up is done refer to appropriate Set up competency standards.) |
| 7. Conduct proof run | 7.1. Material to be used for proof is organised correctly<br>7.2. Press is set up and operated according to OHS guidelines<br>7.3. Print impressions are set to minimum kiss impression<br>7.4. Web tensions are correctly set at unwind, between stations and rewind<br>7.5. The print is checked for register<br>7.6. Drying is checked as sufficient to key ink to the substrate<br>7.7. The viscosities are adjusted to obtain the correct colour at proof speed and checked against ***colour matching system***<br>7.8. The substrate is checked against job specifications |
| 8. Organise proof inspection and/or testing | 8.1. Proof is visually inspected and/or tested or laboratory testing is organised according to enterprise procedures.<br>8.2. Production does not commence without client approval or authority where appropriate |
| 9. Readjust settings to production speed | 9.1. Production speed print results are interpreted and appropriate adjustments are made to press, ink and substrate settings<br>9.2. Adjustments are made according to product specifications and press performance<br>9.3. Web is spliced at production speed and further samples are obtained for quality inspections at appropriate intervals<br>9.4. Press setting is documented and samples are retained |

# Required Skills and Knowledge

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit.

**Required skills**

- OHS in relation to operating machinery such as safely switching off machinery before cleaning is started
- communication of ideas and information by interpreting job tickets and requirements
- collecting, analysing and organising information by collecting and assessing data about printing process and machine specifications and characteristics and how these interact
- planning and organising activities by providing input into production scheduling about time requirements for set up to ensure efficient operation
- teamwork when working with other workers to coordinate set up to ensure efficient operation
- mathematical ideas and techniques by calculating substrate requirements
- problem-solving skills by recognising proofing faults and determining adjustments to correct them
- use of technology by using monitoring equipment and interpreting readouts

**Required knowledge**

- action if vital information was missing from the job ticket
- checks that are undertaken prior to set up (availability of materials etc.)
- flexographic printing plates and cylinders or sleeves or plate mounting sheets
- precautions that should be taken to avoid damaging plates and cylinders
- OHS factors that need to be considered when operating the reel in-feed and delivery system
- choosing the printing side of the material
- effect of low web tension on the print
- types of web splices that could be used appropriately for the job
- sheet in-feed
- OHS factors that need to be considered when operating the sheet in-feed and delivery system
- sheet is normally set up in the middle of the machine
- effect that side lay selection has on the job
- appropriate front lays to be selected
- determining the position of the sheet before it is transported to the printing unit
- registering check be carried out
- two-sheet cut is used on most feeders
- sheet is missing or late
- reel delivery system

**REQUIRED SKILLS AND KNOWLEDGE**

- effect of excessive web tension at the rewind of the machine
- minimising risks associated with the rewind of the machine
- sheet delivery system
- application of spray powder is sometimes advisable
- effects of too much spray powder
- slowdown devices may be used in the delivery
- effect excessive jogging would have on the stack
- selection and preparation of inks and additives
- major environmental and OHS concerns with regard to inks and additives
- suitability of ink matched to the particular job
- implications if the ink were too viscose
- modifying ink that was slightly light
- methods that are available to check the ink for correct colour
- who passes the colour prior to running the job
- machine set up
- OHS factors that need to be considered when setting up the machine
- how machine specifications are determined, relating to the specific job
- steps that should be taken to ensure that the inking system is adjusted correctly
- why inking system ink level is maintained at a certain level
- precautions that are necessary when handling doctor/chamber blades
- optimum make ready speed for the job
- basic in-line processes
- steps that are taken to incorporate the in-line processes into the make ready
- equipment used in in-line processing is protected against damage during set up
- precautions that should be taken if UV drying is utilised to dry the ink film
- proofing and adjustment
- methods that can be used to minimise waste during make ready
- procedures that are followed to have the print approved
- quality control measurements that should be applied to the proof to test against known standards
- checking the initial print prior to running
- determining settings to be adjusted
- processes to be used to plot the success of the machine adjustment
- final results recorded for future reference
- relevant test procedures
- identifying and describing the tests for scuffing and coefficient of friction
- circumstances in which these tests should be applied
- leaching
- machine manuals, safety and other documentation that are relevant to this task and where are they kept and information that is included in these documents

# Evidence Guide

| EVIDENCE GUIDE | |
|---|---|
| The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package. | |
| **Overview of assessment** | |
| **Critical aspects for assessment and evidence required to demonstrate competency in this unit** | Evidence of the ability to:<br>• set up flexographic printing machines for routine print jobs. The individual will conduct a proof run and adjust settings to ensure production speeds are attained<br>• demonstrate use of computerised control, monitoring and data entry systems if available and appropriate<br>• demonstrate an ability to find and use information relevant to the task from a variety of information sources<br>• demonstrate all safety devices on the machine<br>• set up a press on TWO occasions for basic flexographic printing (if possible including at least ONE in-line process), according to manufacturer's specifications, enterprise procedures and the Performance Criteria<br>• evidence for assessment may be gathered from assessment of the unit of competency alone or through an integrated assessment activity. |
| **Context of and specific resources for assessment** | Assessment must ensure:<br>• assessment may take place on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| **Method of assessment** | A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:<br>• direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate. |
| **Guidance information for assessment** | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:<br>• ICPSU201C Prepare, load and unload reels and cores |

| **EVIDENCE GUIDE** | |
|---|---|
| | on and off machine<br>• ICPSU202C Prepare, load and unload product on and off machine<br>• ICPSU207C Prepare machine for operation (basic)<br>• ICPSU211C Prepare ink and additives<br>• ICPPR211C Mount and proof flexographic plates for basic printing<br>• ICPPR214C Produce basic flexographic printed product. |

# Range Statement

| **RANGE STATEMENT** | |
|---|---|
| The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included. | |
| ***Substrate handling*** may include: | • wide or narrow reel and small or large sheet handling systems. |
| ***Substrate types*** may include: | • range of substrates within the major categories of paper, pressure sensitive material, board, corrugated board, plastics and related films, or metal. |
| ***Inks*/*coatings*** may include: | • range of standard inks commonly used in colour printing. |
| ***Routine*** may include: | • routine within this context relates to the set up and production of print runs. The set up of equipment and production are straightforward and do not involve a significant amount of deviation from using standard equipment settings. In this sense, routine does not refer to a job that an individual might repeat on a regular basis. |
| ***Machines*** may include: | • a range of stack, in-line and central impression flexographic printing machines with manual, semi-automated, fully automated or computerised process control. |
| ***In-line processes*** may include: | • minor processes that are integral to this competency can include basic in-line operations such as perforating, numbering, date coding, slitting that do not in themselves constitute another defined unit of competency. Where a major in-line process is defined as a separate competency (eg flat-bed cutting, folding) it should be assessed as such. |
| ***Colour matching systems*** may include: | • use of visual colour assessment and densitometry to match basic standard colours under controlled lighting conditions. |
| ***Design*** may include: | • colours, simple graphics and text. Minor variation in registration and position. |

# Unit Sector(s)

| | |
|---|---|
| **Unit sector** | |

# Competency field

| | |
|---|---|
| **Competency field** | Printing |

# Co-requisite units

| | | |
|---|---|---|
| **Co-requisite units** | | |
| | | |
| | | |