



Australian Government

Department of Education, Employment and Workplace Relations

ICPPR314C Produce complex flexographic printed product

Revision Number: 1

ICPPR314C Produce complex flexographic printed product

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to produce non-routine flexographic printed product.
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Application of the Unit

Application of the unit	This unit requires the individual to operate a reel-fed flexographic press ensuring an efficient non-routine production flow that maintains product quality standards. Any production problems are anticipated and rectified with minimum downtime. The machine is correctly shut down and cleaned according to OHS guidelines.
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.
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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.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Maintain non-routine operation of reel transportation system	1.1. Reel stand is monitored and adjusted to ensure efficient continuous operation 1.2. Web control system is monitored and adjusted to ensure correct tension and accurate continuous positioning of the web for efficient operation 1.3. Substrate is added to process according to job instructions
2. Maintain non-routine operation of reel delivery system on web-fed machine	2.1. Reel rewind section is monitored and adjusted to maintain correct tension and to ensure no marks, blemishes or damage to finished product 2.2. Substrate is removed from process according to non-routine job instructions 2.3. Sheeting section is monitored and adjusted to ensure quality and efficient product delivery 2.4. Set-off/marketing prevention system is monitored and adjusted to ensure quality of printed product without set-off or marking meets the standard of approved proof
3. Maintain complex flexographic printing process	3.1. Flexographic plate and plate cylinder or sleeve condition is monitored and adjusted to ensure the quality of printed product meets the standard of the approved proof 3.2. Flexographic impression roller condition is monitored to ensure the quality of printed product meets the standard of approved proof 3.3. Flexographic inking system and doctor blade condition are monitored and adjusted to ensure quality of printed product meets the standard of approved proof 3.4. Drying systems are monitored and adjusted to ensure quality of printed product meets the standard of approved proof 3.5. In-line printing/converting/binding/finishing processes are monitored and adjusted to ensure quality of product meets the standard of the approved proof
4. Maintain non-routine production process	4.1. Production process is operated in association with fellow workers and according to company specifications and planned daily schedule 4.2. Production is maintained within OHS requirements and company and manufacturer's specifications

ELEMENT	PERFORMANCE CRITERIA
	4.3. Manual and/or automatic control is used as per specification 4.4. Manual and/or automatic control is used as per specification 4.5. Ink performance, colour, register and position of print are monitored and adjusted throughout production run 4.6. Production difficulties are anticipated and preventive action is taken to prevent occurrence by timely intervention 4.7. Process adjustments to eliminate problems are reported according to enterprise procedures 4.8. Faulty performance of equipment is identified and reported according to enterprise procedures 4.9. Waste is sorted according to enterprise procedures
5. Identify and rectify faults	5.1. Problem in flexographic machine is identified and reported according to enterprise procedures 5.2. Adjustments or corrections are carried out according to specified procedures and consistent with operator's skill level 5.3. Flexographic machine operation is checked to ensure correct operation 5.4. Machine faults requiring repair are identified and reported to designated person according to enterprise procedures
6. Conduct shutdown of production process	6.1. Correct shutdown sequence is followed according to manufacturer's specifications and enterprise procedures 6.2. Shutdown is conducted in association with fellow workers and in compliance with OHS requirements 6.3. Reels and cores are removed from press 6.4. Unused ink is drained back to containers and correctly labelled and stored according to manufacturer/supplier specifications and enterprise procedures 6.5. Solid and liquid waste is removed from operating area and recycled or disposed of, where required, according to regulatory requirements and enterprise procedures 6.6. All product is removed from operating area
7. Clean and wash up printing machine at	7.1. Cylinders or sleeves, plate and roller surfaces are

ELEMENT	PERFORMANCE CRITERIA
end of print run	cleaned ready for next run 7.2. Inking rollers and doctor blades or chamber blade systems are cleaned with correct solvents according to OHS guidelines 7.3. Ink pumps, tanks and hoses are cleaned correctly 7.4. Impression rollers/central impression and press rollers are cleaned 7.5. In-line printing/converting/binding/finishing units are cleaned ready for next run 7.6. Reel feed, transportation and delivery systems are disengaged and cleaned ready for next run 7.7. Press is lubricated and protected according to duration of shutdown 7.8. Production records or other documentation are accurately completed where required by enterprise procedures

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 the job brief and providing advice to clients about options and limitations
- collecting, analysing and organising information by collecting and analysing data about printing process, machine specifications and performance to calculate appropriate adjustments for the job
- planning and organising activities by providing information about time and materials requirements for production scheduling
- teamwork when maintaining the production process in association with others
- mathematical ideas and techniques by calculating substrate requirements, plate position and pressures
- problem-solving skills by recognising proofing faults and calculating adjustments necessary to meet job specifications
- use of technology by using monitoring equipment and making adjustments

Required knowledge

- reel transportation and web control
- causes of the reel to wander
- cause the web to break at the unwind unit
- difference between a "flying paster" and "zero speed" type reel-stand
- print fault that would result from the reel being run out of centre
- possible faults in the unwind section that could cause a web break
- reel delivery for rewinding and sheeting

OHS risks associated with rewinding and sheeting

- hat safety feature in the delivery system if the web jams up
- why the sheet cut-off would wander
- effect of poorly adjusted nip rollers when rewinding and sheeting
- printing and drying units
- result if the plate lifts on the leading edge during a print run
- build-up of ink on the impression cylinder affecting the printed product
- causes of the ink foaming in the ink tray
- effect of too much reducer in the ink
- actions that reduce wear of the doctor blade
- necessary that all solvents be removed from the final ink film
- the link between driers and set off and marking

REQUIRED SKILLS AND KNOWLEDGE

- causes of UV ink to dry
- causes substrate to distort
- effect in the chillers if the drying temperature was too low
- effect of incorrect drying temperature on the finished product
- advisable not to eat or drink near the machine when using UV inks
- necessary to frequently examine the in-line components of the job
- how the consistency of the punching unit is checked
- result of excessive pressure on the slitters
- maintaining production process
- safety features within the organisation aid in maintaining effective production
- who would be held legally responsible for the removal of machine guards and/or disconnection of micro switches
- effect of inadequate communication within the work team on a flexographic printing machine
- ramifications if machine guards are removed and/or micro switches are disconnected on a machine
- other measurements besides optimum solid ink density can be measured to assess print quality accurate method of checking register during a production run
- necessary to take immediate action when production problems are anticipated
- actions to be taken to eliminate further processing of unacceptable printed product
- the result to the substrate if the relative humidity is increased in the press room
- procedure to care for a newly delivered substrate to the press room
- why should waste be sorted
- advantage of keeping reusable waste
- industry standards that can be applied to enhance effective communication with the client
- necessary procedures that the client should follow to "OK" a printed product
- flexographic machine operating problems
- when it would be necessary to call service personnel to correct a machine problem
- enterprise procedures that are in place to report any machine operating problems
- shutdown procedures
- result if correct shutdown procedures were not followed
- necessary that correct shutdown procedures are conducted with fellow workers
- advantages that result from proper labelling and storage of excess inks and materials
- printed product needs to be clearly labelled prior to removal from the press room
- further operations that are required for printed reels upon removal from the printing machine
- how the printed job should be stored after removal from the printing machine
- cleaning and washing up the printing unit
- OHS concerns should be observed when handling ink

REQUIRED SKILLS AND KNOWLEDGE

- safety precautions should be observed when cleaning the printing cylinders
- necessary to thoroughly clean and wash up the printing unit prior to the next print run
- why the anilox cells should be thoroughly cleaned
- how can plates be stored to minimise damage
- cleaning feed, transportation, delivery and in-line sections
- OHS precautions that should be observed when cleaning these sections of the machine
- necessary to maintain a clean substrate handling section of the machine
- completing production records
- completed records used in the final analysis of the job
- benefits of comprehensive records when considering the production of future jobs
- machine manuals, safety and other documentation that are relevant to this task and where are they kept and information 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:

- operate a reel-fed flexographic press ensuring an efficient 3 or more colour production flow that maintains product quality standards. Any production problems are anticipated and rectified with minimum downtime. The machine is correctly shut down and cleaned according to OHS guidelines
- demonstrate use of computerised control, monitoring and data entry systems if available and appropriate
- demonstrate an ability to find and use information relevant to the task from a variety of information sources
- monitor production output and make necessary adjustments to maintain print quality on a flexographic machine whilst producing a complex print on TWO occasions (if possible using different substrates and if possible including at least TWO in-line processes) according to job specifications, enterprise procedures and the Performance Criteria
- 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:

- 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
- flexographic press.

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:

- direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate.

EVIDENCE GUIDE**Guidance information for assessment**

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:

- ICPPR411C Mount and demount flexographic plates for complex printing
- ICPPR413C Set up for complex flexographic printing.

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.

<i>Substrate handling</i> may include:	• wide and narrow reel delivery systems.
<i>Non-routine</i> may include:	• non-routine within this context relates to the set up and production of print runs. The set up of equipment and production involves a significant amount of deviation from using standard equipment settings. It also involves significant problem solving and the development of new criteria and procedures for performing current practices. It does not refer to a job that an individual does only occasionally.
<i>In-line processes</i> 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.
<i>Inks/coatings</i> may include:	• range of inks commonly used in 4 or more colour printing, including standard and special colours.
<i>Machines</i> may include:	• range of stack, in-line and central impression flexographic printing machines with manual, semi-automated, fully automated or computerised process control.
<i>Colour matching systems</i> may include:	• use of viscosity controls, densitometers and spectrophotometry.
<i>Design</i> may include:	• 4 or more colours, complex graphics and text. Critical "tight" registration, fit and position, registration should be at least that required for four-colour process work.
<i>Substrate types</i> may include:	• range of substrates within the major categories of paper, pressure sensitive material, board,

RANGE STATEMENT

	corrugated board, plastics and related films, or metal.
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Unit Sector(s)

Unit sector	
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Competency field

Competency field	Printing
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Co-requisite units

Co-requisite units		