
Overview

This standard is for print finishers who produce CAD, carton designs or samples.

This standard involves :

- 1 interpretation of brief;
- 2 programming and using software;
- 3 identifying materials for best end of use solution;
- 4 creating or choosing the shape;
- 5 checking the product is capable of manufacture;
- 6 ensuring the design is economical;
- 7 creating carton profile.

**Performance
criteria**

- You must be able to:
- P1 follow a brief to make a sample for a given carton using CAD software
 - P2 programme the plotter to cut the sample by machine
 - P3 demonstrate a hand cut sample using a knife and scoring stick
 - P4 demonstrate the reason for the stated grain direction
 - P5 prepare a fully dimensioned blueprint from the CAD software, showing grain direction
 - P6 make a CAD prepared layout to demonstrate a multi-up sheet taking into account internal waste, gripper, back edge, side and off lay
 - P7 indicate internal waste, varnish and ink free areas, glue patterns, and board grain direction
 - P8 demonstrate the most cost efficient use of board, both in single pack and overall sheet utilisation
 - P9 use the CAD software and demonstrate the modulation of the one up design into a tooling specification for die, matrix, stripping and blanking tools

Knowledge and understanding

You need to know and understand:

- K1 how a written brief translates into a practical solution for the carton end use
- K2 how print restrictions/attributes affect the final appearance of a carton
- K3 how a carton folds, and the function of creases, scores and skip cuts
- K4 how features such as opening devices, tear-strips, point of sale billboard and locking features enhance carton performance
- K5 how to programme and use CAD software
- K6 how to programme and use sample cutting machine (plotter)
- K7 how to cut a sample by hand
- K8 the different materials (stock) available
- K9 how different types of stock affect carton performance
- K10 the importance of grain direction to the performance of the carton
- K11 what coatings and finishes are available on board and their characteristics
- K12 the library of folding carton shapes
- K13 different styles of erecting machines
- K14 the function of both proprietary and non-proprietary machines
- K15 the implication of licence and patents, including intellectual property of carton design features
- K16 how graphics are applied to a carton shape for production requirements
- K17 how cartons interlock and economically fit on a flat production sheet
- K18 how and why to estimate for waste for gripper, back edge, side and off lay
- K19 how to prepare a drawing for alternative options to suit production
- K20 the purpose and scope of cutting and creasing machine tooling, to include cutting die (forme); female matrix – engraved counter plate and plastic counters, male and female stripping tool; male and female blanking tool
- K21 how tooling is manufactured and used
- K22 how a cutting and creasing machine works (not how it is operated)
- K23 cutting pressures and how this affects crease quality
- K24 dynamic waste ejection
- K25 how a folder gluing machine works (not how it is operated)
- K26 how make-ready and machine set-up affects the quality of carton creases
- K27 the styles which are applicable to the learners sponsor
- K28 how ancillary equipment such as foil blocking, windowing and other attachments can enhance a carton

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- K29 the cost efficient features of the design to aid better production capability
 - K30 the decisions made for the style and each feature on the design
 - K31 the machine erecting capabilities and patent features, where applicable
 - K32 describe the features which restrict ink and varnish coverage and how the graphics will 'sit' on the outlined profile
 - K33 line patterns and legend
 - K34 how the design has impacted on the estimated cost of producing a production order
 - K35 the carton finishing features from folding and gluing to added enhancements such as window patching

PROCTN405 (SQA Unit Code – H7TB 04)
Produce CAD, carton design or sample making



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| Developed by | Proskills |
| Version number | 2 |
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| Validity | Current |
| Status | Original |
| Originating organisation | Proskills |
| Original URN | PROCTN405 |
| Relevant occupations | Printers; Screen printers; Printing machine minders and assistants; Bookbinders and print finishers; Graphic designers |
| Suite | Carton Manufacture |
| Key words | Print; printing; mechanised print finishing and binding; finishing; binding; newspaper; periodical; machine; litho; web offset; flexo; screen print; gravure; pad print; carton manufacture; fibreboard |
