



SPECIFICATION FOR THE MANUFACTURE OF CORRUGATED AND PREPRINT FIBREBOARD BOXES

Prepared by Ozpak Pty Ltd	Date of Issue
Based on Guidelines prepared by W.P.A. members: Barossa Bottling Services, Best Bottlers, Hunter Bottling Co., McLaren Vale Bottlers, Ozpak, Portavin, Prowine, Torresan Estate & Vinpac	30 th July 2014

THIS SPECIFICATION SHOULD BE MADE AVAILABLE TO YOUR MARKETING STAFF, DESIGNERS, MANUFACTURERS AND SUPPLIERS OF CORRUGATED AND PREPRINT FIBREBOARD BOXES.

A. PURPOSE

To advise your marketing staff, designers, and your manufacturers/suppliers of Ozpak's specifications for corrugated post print, lithographic print and preprint fibreboard boxes.

The specifications are given to ensure that supplied corrugated post print, lithographic print and preprinted fibreboard boxes are capable of being applied mechanically on Ozpak's bottling lines.

B. GUIDANCE

Ozpak's experienced staff are available to answer any queries regarding the contents of this specification, and can assist with design concepts.

Where a fibreboard box has not been previously used at Ozpak, Ozpak would need to conduct trials prior to bottling to confirm it can achieve a mechanical application on its bottling lines.

C. RESPONSIBILITY

Customers should ensure that corrugated and preprint fibreboard boxes provided are manufactured with reference to the information contained in this specification.

Boxes shall conform to the requirements of AS 3537-2006.

D. REQUIREMENTS

Technical drawings and application specifications must be supplied in PDF format to your Account Manager at least 28 days before the scheduled bottling date.

Box blank warp

- The maximum allowable warp of the die cut box blank is 4% of the length (or width). The warp is defined by the relationship $U/L \times 100$, where U is the arch height and L is the length of the blank (see Figure 1). It is noted in the above section C. Responsibility that the box shall conform to the requirements of AS3537-2006. This standard tables that "warp" will not exceed 4% in length or width.

Dimensions

Measurements of slotted boxes (see Figure 3)

- Score to score panel sizes of $\pm 1\text{mm}$ with no more than 3mm accumulated over 4 panels.



- Slotting position shall aim to be 3mm past the score line with a ± 3 mm variance.
- Height variance of ± 2 mm.
- Centre of slot to line up with vertical score (same plane).
- Slots to be clean cut and free of waste material.
- Top and bottom flap gap measurements on assembled box to be 4mm with ± 3 mm tolerance

Board Material

The flute type is to be as specified.

- Flute B Thickness 2.4mm to 3.2mm (paper liner dependant).
- Flute C Thickness 3.4mm to 4.2mm (paper liner dependant).
- Flute R Thickness 1.8mm to 2.3mm
- Laydown boxes to be specified and manufactured using a 'C' flute board grade.
- Board materials in excess of this specification must undergo a trial to ensure they can be assembled on Ozpak's bottling lines.

Crush

Visy Board and Orora Fibre Packaging do not use calliper as a measurement of corrugated medium damage (flute crush), this is due to the inherent nature of corrugated board having "memory". The memory masks the crush damage inflicted upon the corrugated medium and measuring calliper is only measuring the returned memory of the damaged board. Visy use a measurement called DST (BPI) and Orora use a measurement called MdShear. These measurement processes measure the actual damage inflicted upon the corrugated medium.

Delamination

- Not more than 1 in 10 flute tips shall be unbonded.
- Fibre tear is to be present on separation of liner.
- A maximum of 6mm is allowable for edge delamination.
- Misalignment of papers is a maximum of 6mm for the inside liner and 0mm for the outside liner.

Creasing

- All creases (including corrugator scores) are to be straight and well defined.
- There shall be no evidence of cracking on the outside liner.
- Pre-print scores may have minimal cracking, but should not peel.
- Corrugator scores are to show no signs of cracking when folded 90 degrees inwards.
- Internal corrugator scores and die cut creases shall have no more than 50% of creases with cracks and no more than half any crease having signs of cracking.

Print Quality

- Print detail and colours to be the same as the approved proof. The print colours shall be matched as close as the flexographic process allows to Standard PMS colour charts. Supplier shall apply a standard colour range.
 - Print registration ± 2 mm colour to colour.
 - ± 3 mm registration print to each box panel.
 - Preprint to die cut register ± 10 mm.
 - Preprint colour to colour register ± 1 mm.
- Product code, bottle and divider information, and Supplier logo with date and shift stamp to be on



the inside base of all boxes unless otherwise specified.

- Please note that Orora Fibre Packaging match printed colours to Pantone PMS standard with a tolerance of +/-6 % of the PMS standard and that Orora manufacturing date stamps consist of dd/mm/yyyy and machine code where the product was manufactured on.
- Recycle Logo to be on the top flap of all boxes unless otherwise specified.
- Requirement that the contents be printed both ends i.e. 12 x 750ml with the glass and arrow pointed upwards.
- Belt marks and smudging of print will be minimised.
- Supplier approved prints will negate AQL's for print quality
- No post print block print on 'C' flute boxes.

Pre-Print / Lithographic cartons

- Gloss varnish as specified by the customer. There is to be no gloss finish or ink on the internal flaps or glue sealing surfaces. Must also be a non-varnished area on the carton if on-line printing of the box is required. The on-line non-varnished area is to be specified by the customer



Glue Flap (Lap)

- Application of the glue to be 70% width of glue flap and 90% length of glue lap when compressed.
- Correct type of glue to be used to ensure bonding. Fibre tear must be evident when box is pulled apart to ensure box is suitable for use.
- Fish tailing at the manufacturers joint ($k_1 - k_2$), when measured at the flap scorelines to be less than 1.5 times the board thickness but in any case shall not exceed 7mm, with reference to figure 2.
- Glue lap gaps for B and C flute to be $8\text{mm} \pm 3\text{mm}$
- Width of glue lap (minimum) 28mm.
- AS3537-2006 states, the average slot width at the manufacturers joint, $(k_1 + k_2)/2$, when measured at the flap scorelines, shall not vary more than ± 1.5 times the board thickness from the nominal gap, but no more than $\pm 6\text{mm}$ (whichever is the smaller), with reference to figure 2.
- Boxes must be cut with the glue lap to the left of largest panel with print leading left to right.

Presentation

- Each box to be presented in the same direction and same side up in the bundles
- Boxes to be supplied in bundles of 25 unless otherwise specified.
- Bundles to be strapped together using correct tension to not deform or damage cartons.
- Bundle strapping may cause minimal damage to boxes on outside of each bundle. Bundle strapping that is too loose, may present a handling and distribution safety issue.
- Bundles must not be wrapped or packed into boxes as this will incur extra costs.

Delivery of Boxes

For the delivery of boxes:

- Stacked no higher than 1350mm (including the pallet) – 1350mm will allow a 2 stack on most trucks
- Stretch wrapped to ensure stability
- As a minimum the pallets must be strapped twice over the front
- Have a “sample” box visible under the stretch wrap at the front of pallet



Handling & Storage

- Handle in such a manner that no visual mechanical damage occurs.
- Pack and store horizontally on pallets ensuring protection (using scrap cardboard) top and bottom of pallet.
- Use pallet types as specified in agreement with Ozpak.
- Pallets are to be neatly and squarely packed. There may be overhang depending upon box design and pallet pattern. Adequate strapping protection must be provided but it is understood that due to the automated nature of the manufacturing process, the manual application of additional protection around the base of pallets may not be possible.
- A pallet flag, clearly identifying the job shall be visible on a fork lift entry side.
- If possible strapping to be made from recyclable material and closed using heat seal method

Figure 1: Warp of the blank

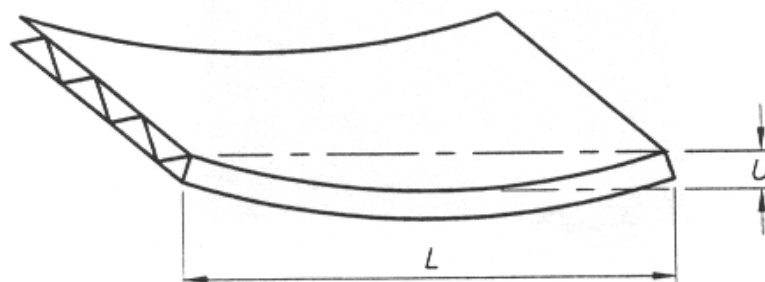


Figure 2: Measurements of slotted boxes



LEGEND:

- c = length of knocked-down box
- k_1 and k_2 = gap at manufacturer's joint at score lines
- $k_1 - k_2$ = fishtailing
- Difference between m_1 and m_2 = misalignment (out of squareness)
- n_1 = minimum gap at flap extreme

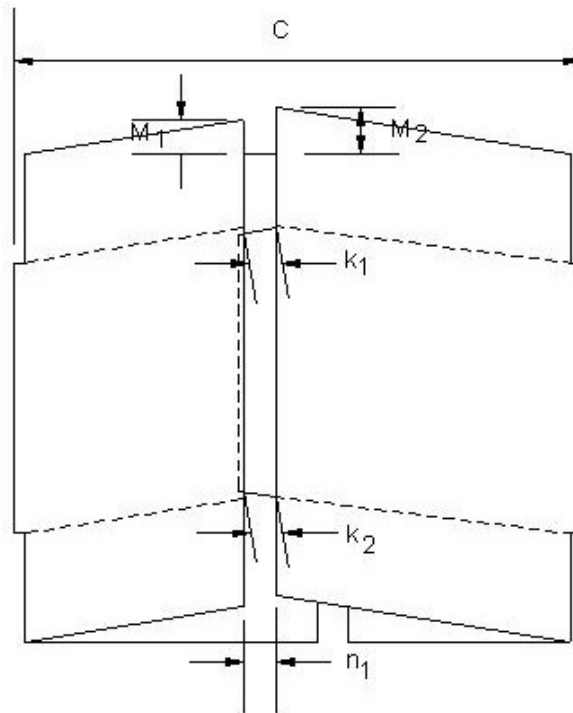
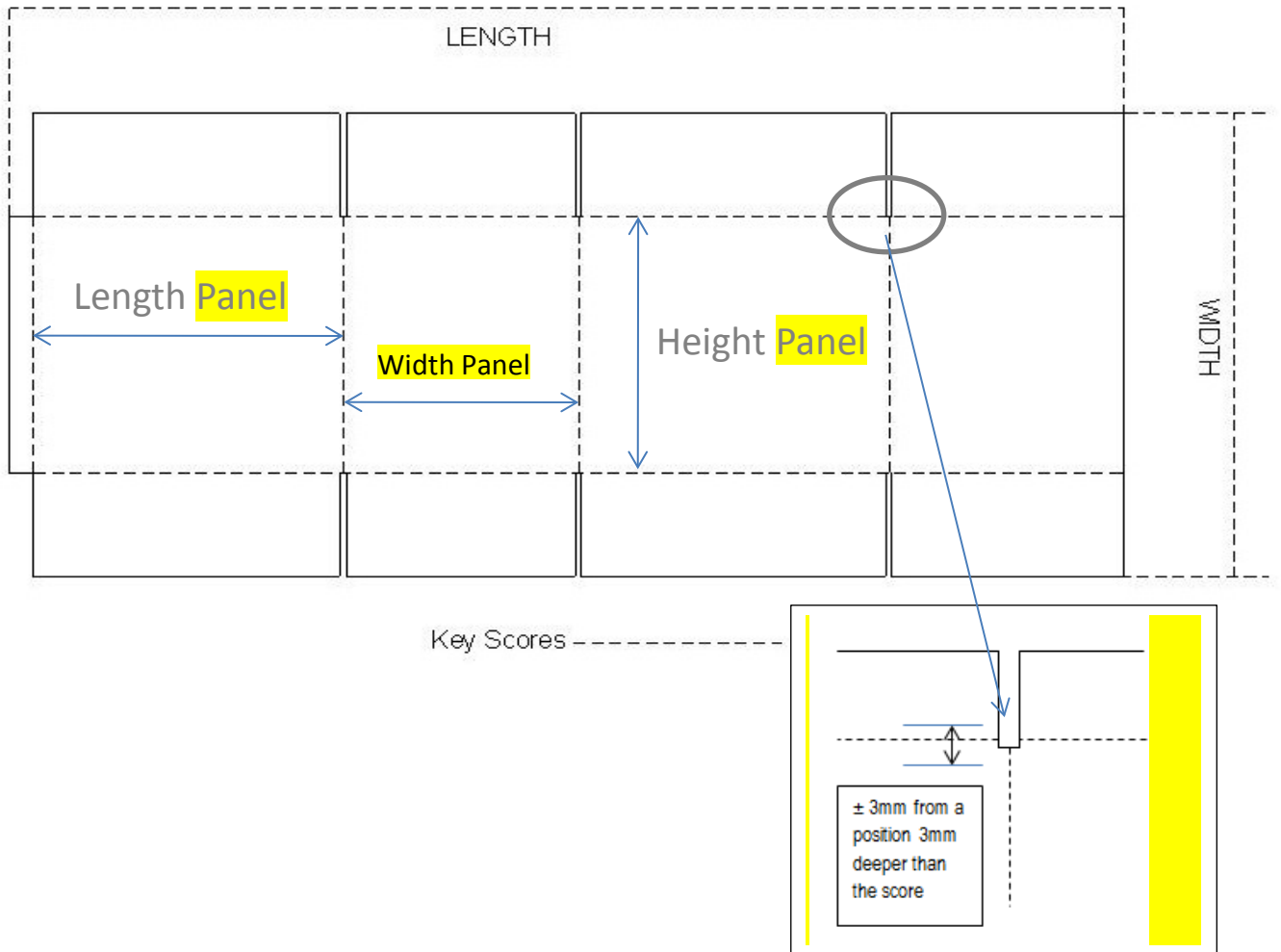




Figure 3: Panel dimension format and slot specification



Scoring Allowance Guidelines (only to be used as a guideline as each Manufacturer uses slightly differing allowances)

- B Flute:- width +3mm, length +3mm, depth +6mm
- C Flute:- width +5mm, length +5mm, depth +8mm



GOOD MANUFACTURING PRACTICE (GMP) AND FOOD SAFETY

The manufacturer/supplier shall maintain pest control within their production facility and it is recommended that your Supplier has ISO and/or HACCP systems in place.

E. INSPECTION AND TESTING

The manufacturer/supplier must maintain a plan of inspection and testing of the product at all stages of production. Parameters and processes must be set up to ensure checks are carried out with sampling and inspection at critical control points.

F. REFERENCES

AS 3537 – 2006 Specification for general purpose corrugated fibreboard boxes and blanks

AS 1199.0 – 2003 Sampling procedures and tables for inspection and attributes

Winemakers Federation of Australia – Wine Packaging Guidelines November 2010 www.wfa.com.au