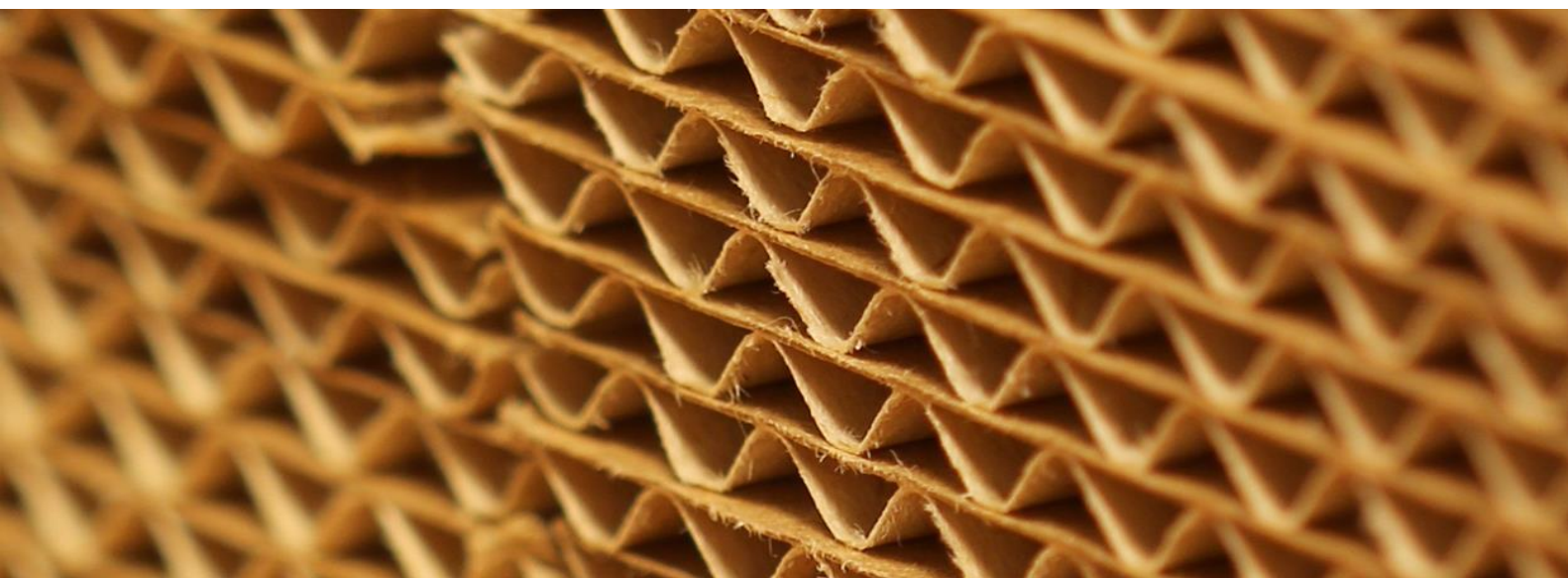


SUW – STANDARD FOR CORRUGATED BOARD FOR USE IN PACKING MACHINES



1 INTRODUCTION

Corrugated board intended for use in automatic packing lines must meet certain requirements in order to function in the packing machines. This standard specifies such requirements for certain properties of normally available corrugated board grades.

The specification can be changed by agreements between buyer and supplier.

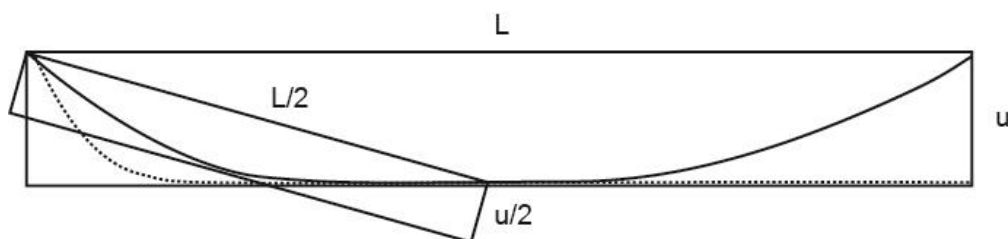
2 QUALITY REQUIREMENTS

The requirement specification given below applies to non-damaged board and to each and every delivery.

2.1 DIE-CUT BLANKS (p. 2-3)

Property	Description	Tolerance	Guide lines (measuring method etc)
Moisture content	Amount of water in paper or board	Mean value: 4 -10% <i>In accordance to storing conditions under chapter 3</i>	Measured according to test standard ISO 287:2009
Dimensions (Length, width)	Dimensions, position of die-cut pieces	length and width <1 m nominal value ± 2 mm length and width 1-2 m nominal value ± 3 mm length and width >2 m nominal value ± 6 mm	Measuring tape, calibrated to 0.3 – 0.5 mm measurement uncertainty
Thickness	Distance between one surface of the corrugated board and the other	Variation of thickness within a lot ± 0.1 mm	Measured according to test standard ISO 3034:2011
Warp	The warp of the blank is defined by the relationship u/L , where u is the arch height and L the blank length <i>See Figure 1</i>	≤ 4 %	All parts of the board (e.g. $L/2$), with the reference length of minimal 250 mm, should not have more than 4% warp.

Figure 1 - Warp



Scoring		Shall fold properly at the score	
Air flow resistance	To be measured on the relevant liner	>20 s	According to Gurley: Measured according to the principle in the standard for air permeance, ISO 5636-5:2013, on the liner material where applicable.

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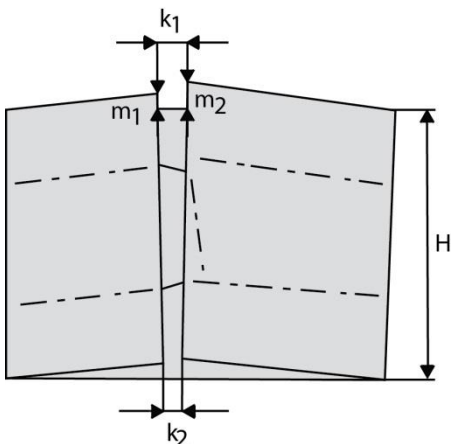
Property	Description	Tolerance	Guide lines (measuring method etc)
Bonding	Refers to strength of the adhesion between liner and fluting	There shall be no visible delamination between liner and fluting	Recommended PAT (Pin adhesion test) > 450 N/m for A-, B- and C-flute according to FEFCO no. 11
Functional tape application		Agreed type of tape and position ± 2 mm to specified position	

2.2 SLOTTED BOXES (p.3-4)

Requirements according to 2.1 above where applicable and in addition:

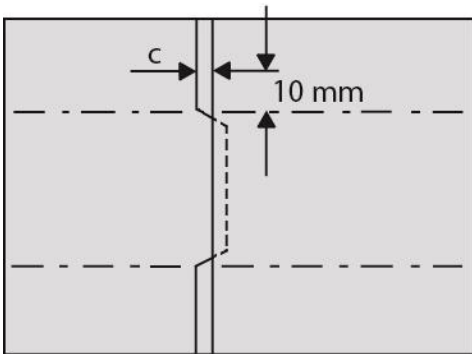
Property	Description	Tolerance	Guide lines (measuring method etc)
Misalignment	Out of squareness <i>See Figure 2.</i>	m_1 and m_2 < corrugated board thickness, but <5 mm.	Measuring tape, calibrated to 0.3 – 0.5 mm measurement uncertainty
Fishtailing	<i>See Figure 2.</i>	Depending on H in Figure 2 $H < 400$ mm $ k_1 - k_2 < 3$ mm $400 \text{ mm} < H < 700$ mm $ k_1 - k_2 < 5$ mm $H > 700$ mm $ k_1 - k_2 < 8$ mm	Measuring tape, calibrated to 0.3 – 0.5 mm measurement uncertainty

Figure 2 - Misalignment and fishtailing, definition of H



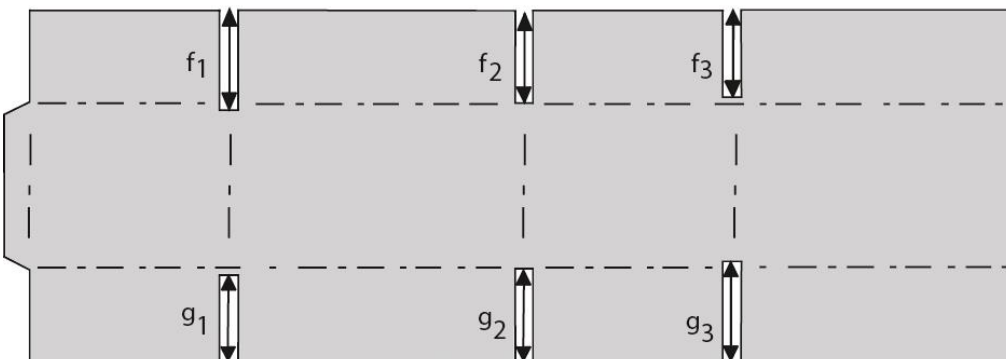
Property	Description	Tolerance	Guide lines (measuring method etc)
Manufacturer's joint		Shall hold together in the manner intended and panels must not be stuck together because of glue splash	
Gap at manufacturer's joint	Difference between edges of the folded panels	$c = \text{Slot width} \pm \text{corrugated board thickness}$ (but variation $< \pm 6\text{mm}$), but c always $> 2\text{ mm}$ <i>See Figure 3.</i>	Measuring tape, calibrated to 0.3 – 0.5 mm measurement uncertainty

Figure 3 - Gap at manufactures joint (c)



Slot depth	<i>See Figure 4</i>	f_j and $g_j = \text{sloth depth} + 3/-3\text{ mm}$ from the middle of the groove	Measuring tape, calibrated to 0.3 – 0.5 mm measurement uncertainty
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Figure 4 - Slot depth



2.3 PALLETISING

When required, the corrugated board shall be protected against water dirt and contaminations by e.g. shrink or stretch filming of the pallet load.

3 HANDLING AND STORING OF CORRUGATED BOARD

- Handle so that mechanical damage does not occur
- Store normally horizontally on pallet
- Storage temperature: 0-30 °C
- Atmospheric humidity in the store: 30-70 % RH
- Condition for minimum 8h (recommended 24h) to the packing room temperature, if this is not the same as in the storeroom
 - Shrink or stretch film should preferably be removed 8h (recommended 24h) before usage to receive faster conditioning
 - Avoid removing of strapping until usage
- Break the pallet load gradually just before use
- Place a cover (weight) on an opened, not fully used pallet load



SUW- The International Development Group for Corrugated Board

SUW is a Research and Development Group for Corrugated Board with members from the corrugated board paper, producer and supplier industry. SUW is part of IFP (Private Owners Association Packforsk).

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