ROYAL MAIL
APPENDIX H
USING CUSTOMER BARCODE CBC

Appendix H: Using Customer Bar Coding (CBC)

1. Introduction

This technical specification defines the features of a mail piece eligible for the CBC service. Any feature of a mail piece design that does not comply with this specification is not permitted unless it has been tested and approved by Royal Mail prior to posting.

This specification is in essence the standard for 'normal' paper, and – unless you use an unusual type of paper – your items will probably comply. Issues such as colour, design and layout of items are covered later in this Appendix. During design, printing and enclosing, you should take into account the various tolerances associated with these processes to ensure that every mail piece within your mailing adheres to these requirements.
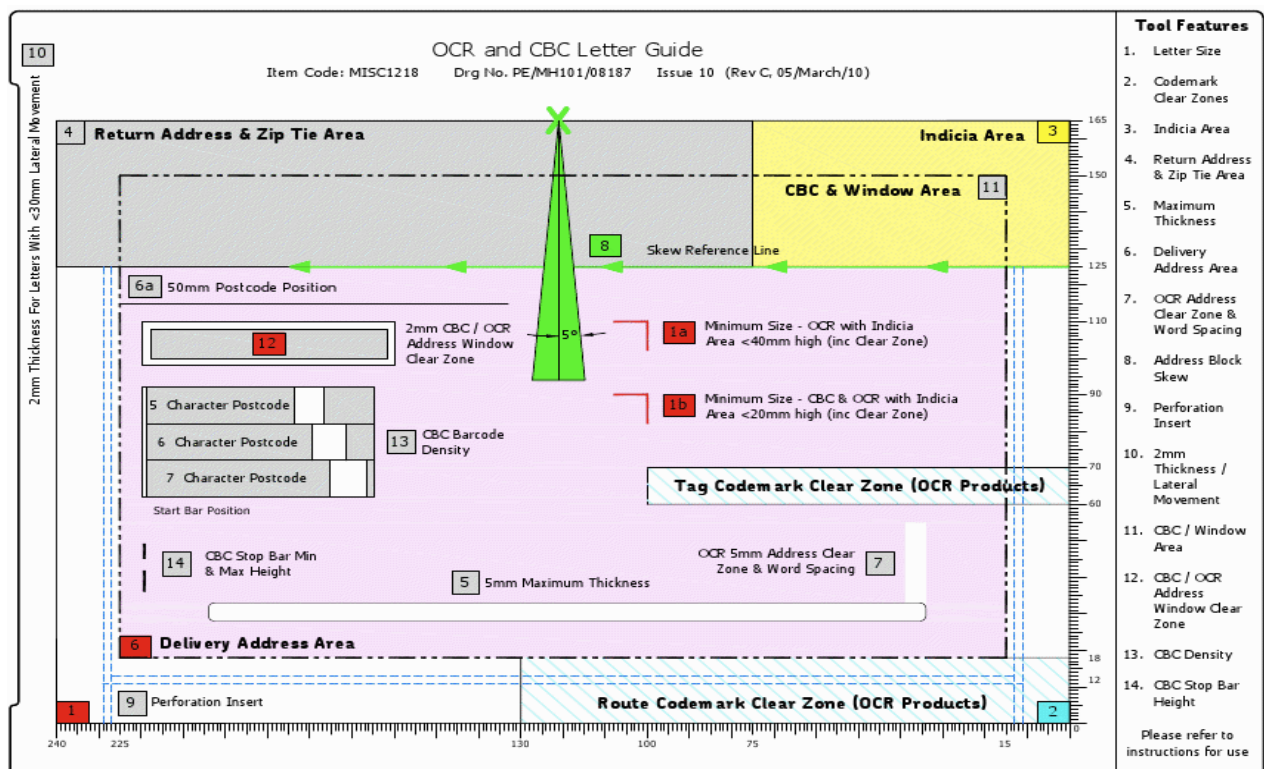
CBC mail is processed by machines which operate at high speeds. These machines integrate stacker feeder systems, belts and pulleys to process and sort the mail through its journey prior to delivery. The sorting process requires mail pieces to be presented and processed through different machines on several occasions (as many as five or six times) so it is necessary that each mail piece is within the physical and material parameters of the specification so it achieves efficient processing with no damage to the machine or mail piece.
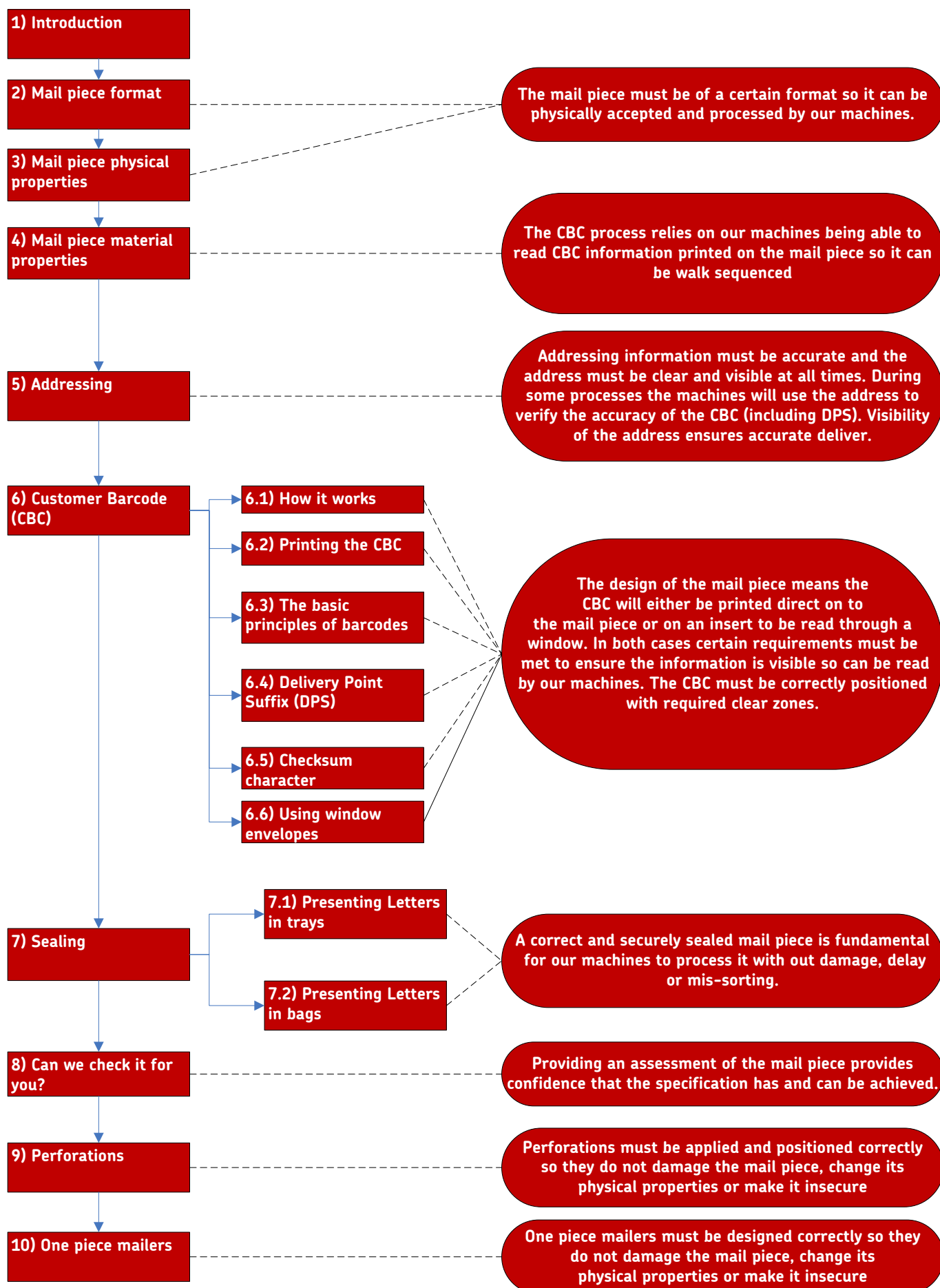
This Appendix has been broken in to sections representing the key stages for mail piece creation with each section setting out the specification requirements. The following flow chart is designed to provide a high level summary of order and content of these processes with additional explanatory information to help understand why specific attributes are required.

J tools and supporting guidelines are provided free of charge and should be used to quality check mail pieces through design and production stages.

OCR CBC
Instructions MISC121

Figure 76:CBC J tool

1) Introduction

2) Mail piece format

The mail piece must be of a certain format so it can be physically accepted and processed by our machines.

3) Mail piece physical properties

4) Mail piece material properties

The CBC process relies on our machines being able to read CBC information printed on the mail piece so it can be walk sequenced

5) Addressing

Addressing information must be accurate and the address must be clear and visible at all times. During some processes the machines will use the address to verify the accuracy of the CBC (including DPS). Visibility of the address ensures accurate deliver.

6) Customer Barcode (CBC)

6.1) How it works

6.2) Printing the CBC

6.3) The basic principles of barcodes

6.4) Delivery Point Suffix (DPS)

6.5) Checksum character

6.6) Using window envelopes

The design of the mail piece means the CBC will either be printed direct on to the mail piece or on an insert to be read through a window. In both cases certain requirements must be met to ensure the information is visible so can be read by our machines. The CBC must be correctly positioned with required clear zones.

7) Sealing

7.1) Presenting Letters in trays

7.2) Presenting Letters in bags

A correct and securely sealed mail piece is fundamental for our machines to process it with out damage, delay or mis-sorting.

8) Can we check it for you?

Providing an assessment of the mail piece provides confidence that the specification has and can be achieved.

9) Perforations

Perforations must be applied and positioned correctly so they do not damage the mail piece, change its physical properties or make it insecure

10) One piece mailers

One piece mailers must be designed correctly so they do not damage the mail piece, change its physical properties or make it insecure
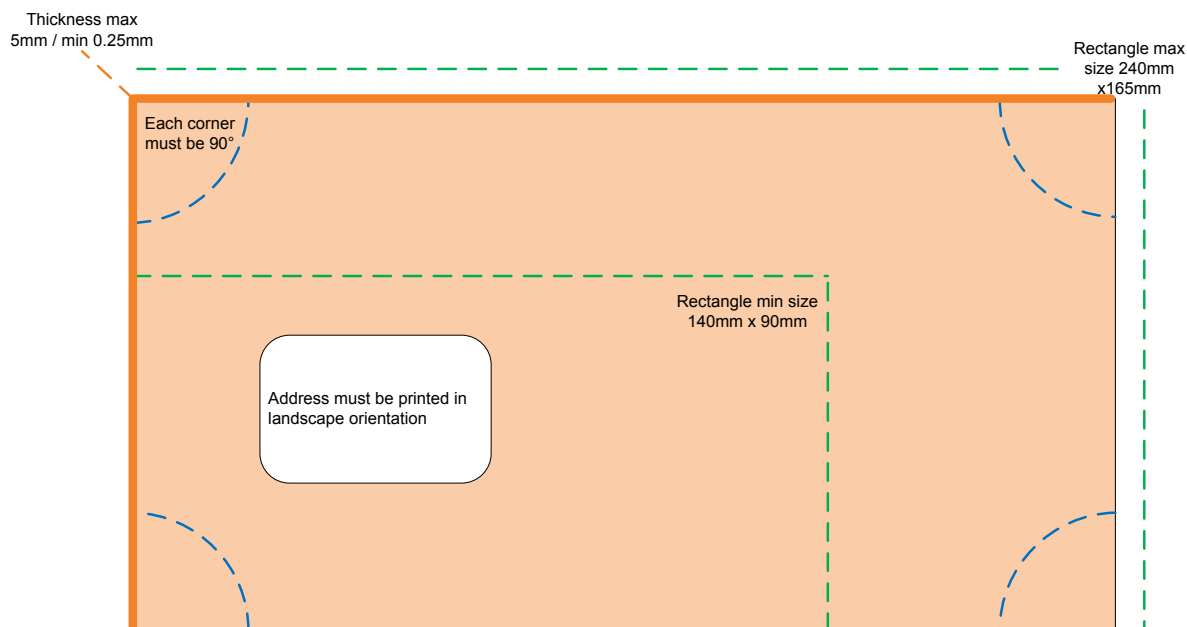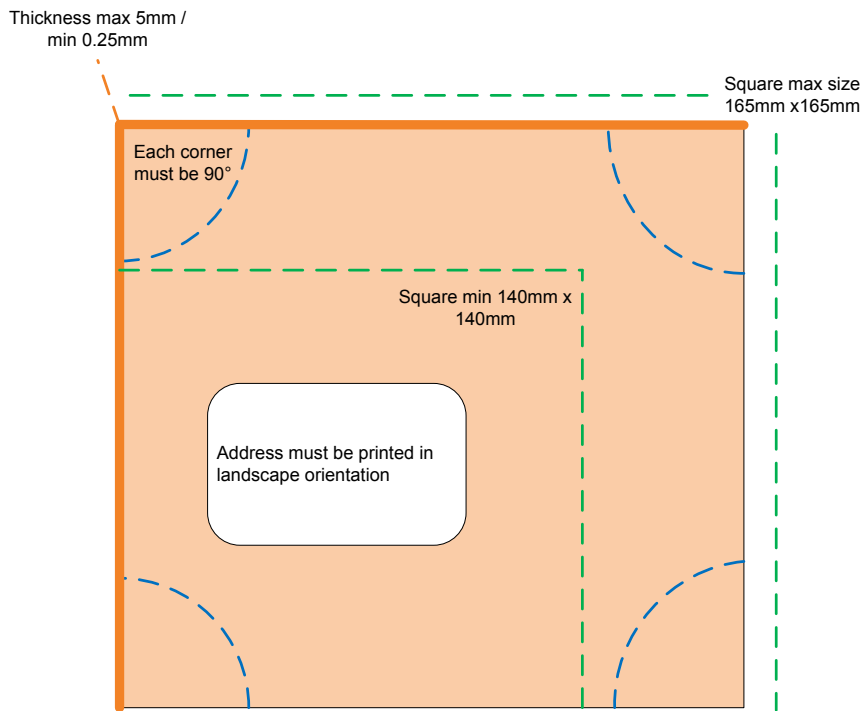
2. Mail piece format

What kind of items you can send? For Mailing Items to comply with CBC, each mail piece must comply with a range of physical parameters

Mail piece format	Physical requirements
Size	**Rectangular items:** • Maximum size 240mm x 165mm (C5+) • Minimum size 140mm x 90mm **Square items:** • Maximum size 165mm x 165mm • Minimum size 140mm x 140mm
Weight	• Maximum 100g
Thickness	• Maximum 5mm • Minimum 0.25mm
Shape	• Rectangular (oblong) or square • All four sides must be straight • Each corner must be 90° • Items may be presented landscape or portrait orientation (subject to the correct positioning of the barcode)

Figure 77:format

Thickness max 5mm / min 0.25mm

Rectangle max size 240mm x165mm

Each corner must be 90°

Rectangle min size 140mm x 90mm

Address must be printed in landscape orientation

Thickness max 5mm / min 0.25mm

Square max size 165mm x165mm

Each corner must be 90°

Square min 140mm x 140mm

Address must be printed in landscape orientation

3.   Mail piece physical properties

3.1.   Flexibility

Mailing Items must be flexible enough to be capable of being processed in our sorting machines without damage to the machine, the Mail Item or other Mailing Items. Each Mail Item must, therefore, be capable of being transported around a pulley with a radius of 140mm with a maximum force of 26 Newtons. Items that are too stiff will not be able to meet this requirement, as shown in figure 79.

Figure 78:Flexibility – pass   **Figure 79:Flexibility – fail**
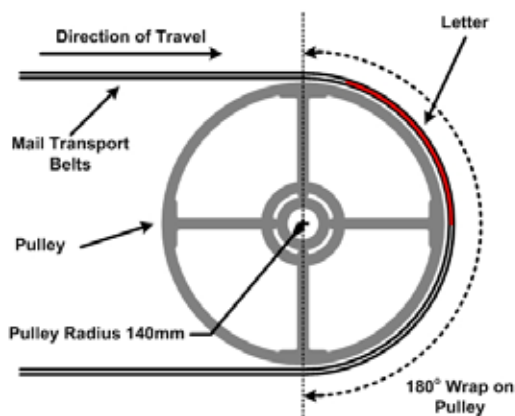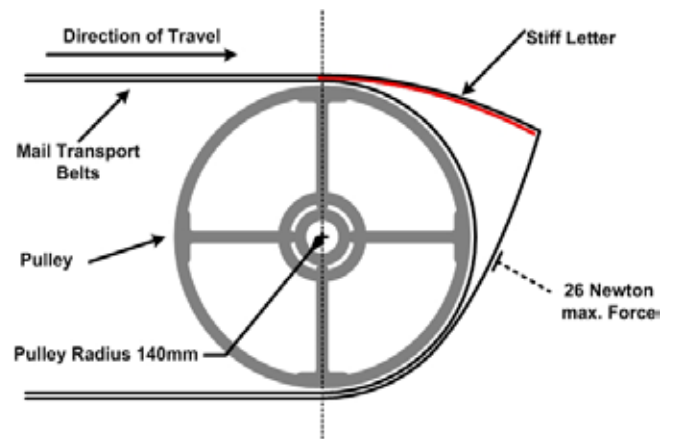
3.2.   Inserts

An insert is defined as anything that is inserted or enclosed into a mail piece. Items such as pens, keys gifts etc. that are inserted in to mail pieces must not alter the properties of the mail piece such that the mail piece falls outside of the CBC automation requirements. Typically the significant factors affected are stiffness, thickness, and insert movement.

For any insert other than paper contents, you must make sure they are fixed in position so they do not move around during processing. You can use glue or self- adhesive tabs to fix any inserts

No metallic items should be contained within the mail piece with the following exceptions:
- staples maximum size 24mm by 6mm
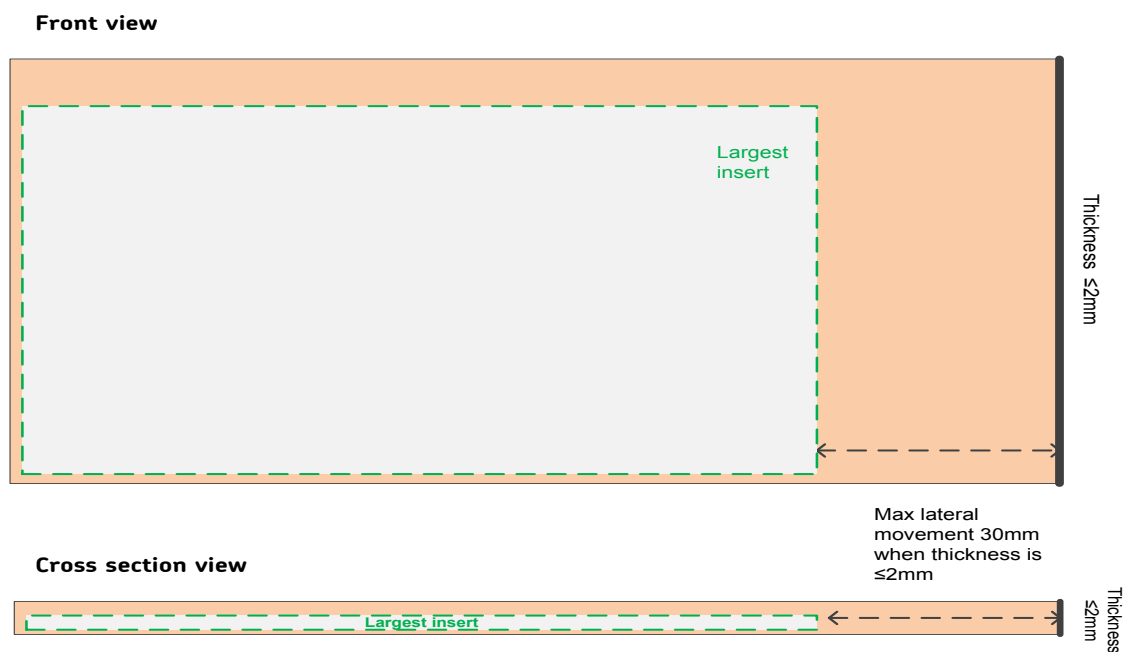- paper clips maximum size of 23mm length

3.3. Lateral movement

The maximum amount of lateral movement of the largest insert within the envelope must not exceed 20mm.

Figure 80:Lateral movement

Front view

Largest insert

Thickness >2mm and ≤5mm

Max lateral movement 20mm when thickness is >2mm and ≤5mm

Cross section view

Largest insert

Thickness >2mm and ≤5mm
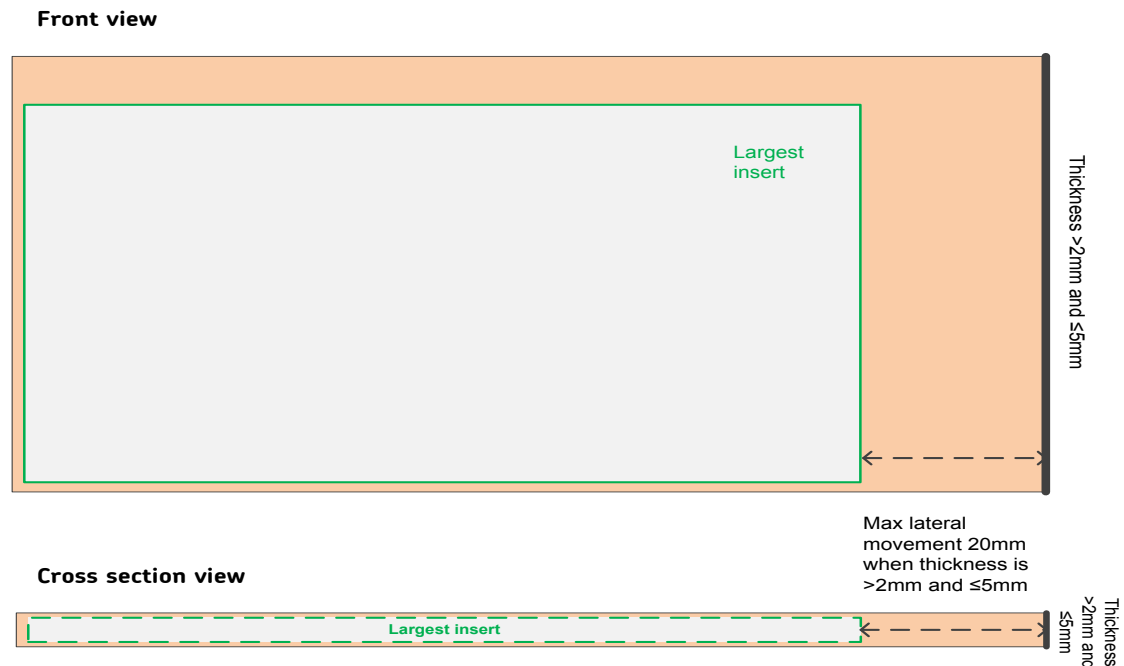
Where the overall total mail piece thickness does not exceed 2mm, the maximum allowable largest insert movement is 30mm.

Front view

Largest insert

Thickness ≤2mm

Max lateral movement 30mm when thickness is ≤2mm

Cross section view

Largest insert

Thickness ≤2mm

4. Mail piece material properties

Paperweight – grammes square meter (gsm)
Envelopes: 70gsm minimum.
Postcards: 200gsm minimum with a minimum thickness of 0.25mm.

Material
Envelopes must be paper based. You cannot use polythene, plastic or transparent items, or aperture envelopes (i.e. window envelopes without a plastic film).

Opacity
The paper on which the address is printed on must be equal to or more than 85% opaque to prevent any character on the reverse side showing through.

Porosity
Porosity value less than 700ml/minute

Absorbency
Absorbency value required 15-35gsm of water in one minute.

Using colour and logos
As well as gaining a lower price a benefit of adding a barcode is greater creative flexibility in mail piece design. You can use a greater range of colours and fonts for the delivery address and you do not need to leave certain areas of the mail piece clear of print and colour.

Paper colour
Please do not use a red, green, black, or dark coloured background, for the CBC as our machines cannot see a barcode printed upon them. You must ensure a Print Contrast Ratio of at least 40%, a Reflective Difference of at least 30% and a Background Reflectance at least 35% for the barcode on CBC items.

Design
If you need to print a separate barcode (including a four state barcode) for your own use on the front of the envelope, you must contact your Access Account Manager for advice on format and positioning to ensure that this does not affect our ability to read the Royal Mail barcode - CBC.

5. Addressing.
The preferred address format is where each line of the address element is on a separate line. The Postcode must be on the last line of the address. Please see Appendix A, 'Addressing Mailing Items' for 'Elements of Address and Address Structure'. Please note that the requirement for "no other text/information on the face of the mail item that could be construed as an address" includes any areas of an insert which may appear in the window of the mail item arising from the insert movement.
The Country name (United Kingdom, Great Britain, England, etc.) must not be used
The Postcode must be in capital letters and contain either one or two spaces between the two parts.

Designing your items for CBC
Before proceeding, please make sure that you have read Appendix A: Addressing Mailing Items.
When addressing your items please also note the following.

6. Customer Barcode (CBC)

6.1. How it works
CBC – Customer Bar-coding – CBC services require Mailing Items to have full and accurate address, Postcode and corresponding barcode to a minimum 90% accuracy per mailing.

The barcode gives our machines the exact information they need to sort the item for delivery. Mail with a correctly prepared and printed barcode passes swiftly through our machines, and as there are fewer 'reading' problems, are rarely rejected and defaulted to manual sorting.
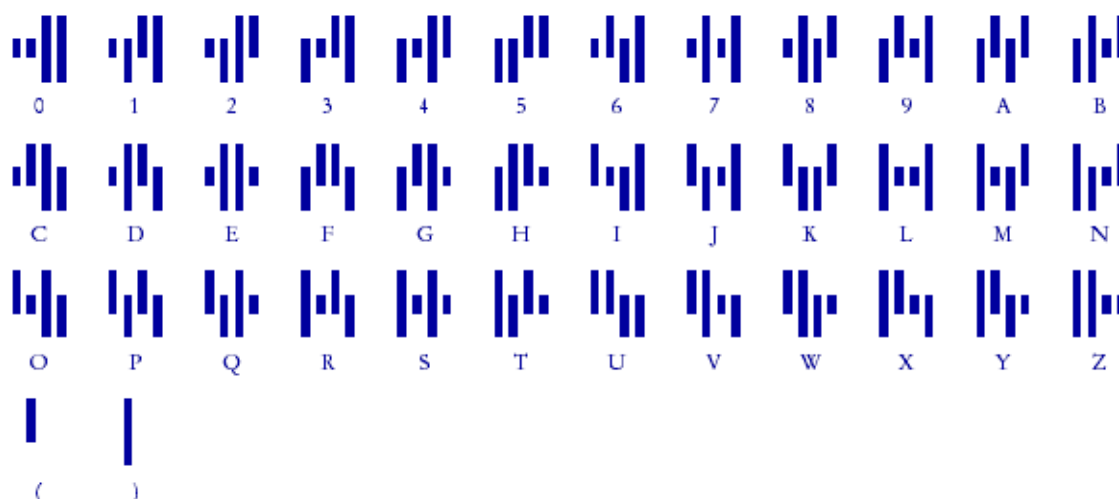
6.2.   Printing the CBC

Please use the CBC J tool to check the following requirements.

The barcode must be printed on the front face of the mail piece within the shaded area as illustrated in CBC J tool (for landscape items). No part of the barcode may impinge on the un-shaded area..

For portrait items the bottom edge is whichever of the longer edges to which the barcode is nearest, and the barcode must not fall within 18mm of this edge or 15mm of any of the other three edges.

For square items the barcode must not fall within 18mm of the bottom edge or 15mm of any other edge when viewed with the address upright.

The barcode must not be printed on the edge of the flap of an envelope if the flap falls to the front of the mail item

Printing

The barcode must be darker than the paper. For example please don't print the barcode in white ink on dark paper.

Background

The background to the CBC, together with the 2mm surrounding clear zone, must consist of a background with constant reflectance

6.3.   The basic principles of barcodes

We've developed a unique bar-coding system for our mail sorting machines. It is capable of containing large amounts of data, and can be produced by all types of printing systems. Each 'character' consists of four bars. Two of these have ascenders and two have descender. There is also a track element in all bars.

Figure 81:CBC elements
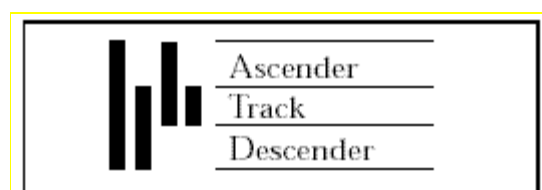
There are 38 valid characters:
numbers 0-9
letters A-Z
open and close brackets (–).

A typical complete barcode
A complete customer barcode must consist of:

- A start bar, positioned at the normal left hand end, next to the first significant data character.
- A set of 'characters' (each consisting of distinct bars and spaces) which give the Postcode (outward code then inward code)
- Two characters (a number plus a letter) which give the Delivery Point Suffix (DPS).
- A checksum character. This helps us spot errors and is explained below.
- A stop bar, at the normal right hand end of the complete code next to the checksum character.

See the illustration below. These elements must only be printed in barcode format and are in addition to the normal correct address and Postcode.

Figure 82:CBC breakdown
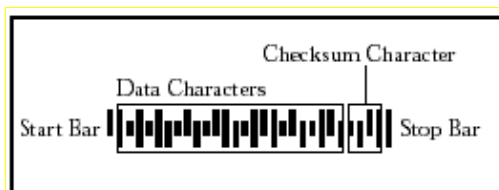
Printing the barcode

Royal Mail can supply you with a True Type Barcode font for common software applications that produce barcodes. Or we can provide a list of third parties who can carry out barcode printing on your behalf. If the Royal Mail font is not compatible with your printing software you will need to purchase the font from your printer supplier.

Position

The exact positioning of your barcode is given below. In practice, it's very straightforward to get the positioning right because we can provide you with the relevant template to overlay on top of your sample barcode, please see figure 76 CBC template. .

The barcode must appear:
On the front of your item
At least 18mm from the bottom edge, and no more than 125mm from the bottom edge
At least 15mm from the top edge
At least 15mm from the right and left edges

Barcode orientation

The barcode can be printed in any of the following orientations with reference to the bottom edge of the mail item:
Normal horizontal
Inverted horizontal
Normal vertical

Length

The barcode must be a continuous string of characters, without gaps or space characters. You must set it at between 20 to 24 bars per 25.4mm and this must be consistent throughout the length of code. The characters must be equally spaced. The length of the barcode will vary depending on the number of characters in the Postcode. The minimum possible length is 35.98mm – for a five character Postcode at 24 bars per inch (per 25.4mm). The maximum is 53.34 – for a seven character Postcode at 20 bars per inch (per 25.4mm). Royal Mail can provide you with simple overlays (please see figure 76 CBC template), which shows if you have the correct length and density of the barcode
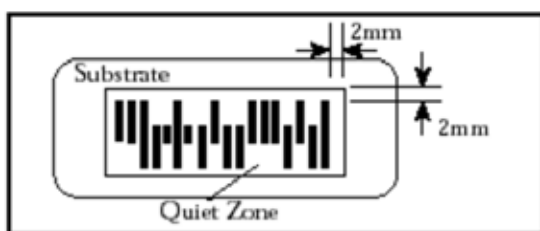
Figure 83:Length and density
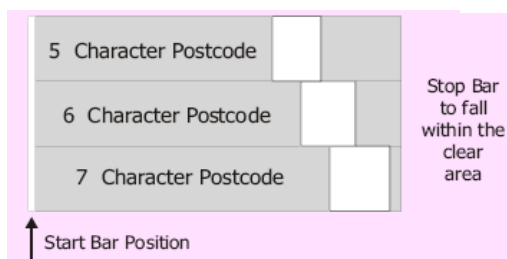
Clear zone

Please print the barcode plus an additional 2mm clear zone around it on a background with a constant reflectance.
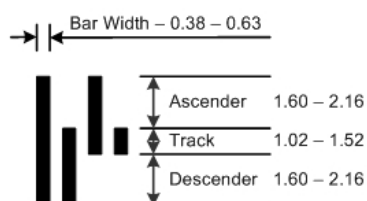
Figure 84:Clear zones

Print Quality of bars

Each bar within a barcode must be sharp and clearly defined. This helps eliminate misreading. The print quality must be consistent throughout the barcode and if the barcode is ink jet produced there must be no gaps between the printed dots.
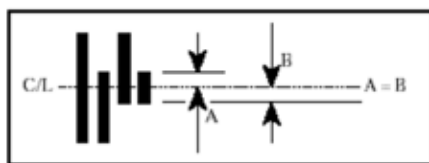
Size of bars

The range of sizes is:

Figure 85:CBC bar size

The width requirements apply throughout the whole bar i.e. no part of the bar can be less than 0.38mm wide or greater than 0.63mm wide.

Vertical alignment

The track element of the bars must be symmetrical to the centre line (C/L):

Figure 86: Vertical alignment

Skew

The skew of each bar in the code must be less than 5°, in either clockwise or anti-clockwise rotation, as illustrated by the angles marked 'Y' in the diagram.

Additionally, the sum of overall code skew and bar skew must be less than 5° in total, as illustrated below. The angle 'X' must be referenced to a line parallel with the longest edge of the mail piece, as shown in the diagram below.

Optical specification

Please print your barcode so it contrasts with the underlying colour – for example black bars on a white background. You must ensure a Print Contrast Ratio of at least 40%, a Reflective Difference of at least 30% and a Background Reflectance at least 35% for the barcode on CBC items. Print quality should be consistent throughout the code. You'll need to take into account the print process you're using and the material onto which you're printing.

6.4.   Delivery Point Suffix

A Postcode is not always sufficient to uniquely identify each Delivery Point in the UK – for example, in shared buildings. Some Postcodes relate to only one delivery point, while others may cover up to a hundred. The average is 15.

For that reason a Delivery Point Suffix (DPS) has been developed. The DPS is a two-character code (a number and a letter) which enables each Delivery Point to be identified. The steps in finding the correct DPS for an address are explained below.

The DPS should be included in the data converted into and printed as a barcode on all your CBC Mailing Items. All barcodes must include a DPS. The DPS should never be printed or written on the items except as part of the encoded barcode.

Delivery Point Suffix Requirements

For CBC services, a minimum of 90% of the Mailing Items must contain a CBC with an accurate DPS. The remaining Mailing Items (up to 10%) may contain a CBC with a default DPS.

Creating the Delivery Point Suffix

The DPS will be extracted from PAF® (or the Postcode Information File (PIF®), using the Postcode for that address, together with the house number or name. The numbers used can be 1-9; it cannot be a 0. The letter can be any letter of the alphabet except for C,I,K,M,O or V. Some addresses do not have a specific DPS. In such cases you should use a default DPS, either, 9U, 9W, 9X, 9Y or 9Z. Whichever of these default DPS' you use is up to you and the same one can be used for all such addresses

There are a number of ways you can obtain the correct DPS:
Purchase PAF® from Royal Mail.
The DPS will be included with PAF® if you take this in either compressed standard or main file format. However, if you take the information in any other format, you'll need to access the DPS through (PIF®).
Purchase a PAF® Address Management package from a Value Added Reseller
You will need to talk to your supplier to arrange access to the Postcode Information File (PIF®).
If you get address information from a bureau
The bureau can hard code their customer lists on an agency basis – much the same way as you may already have your lists Postcoded. They can add the DPS to your lists at the same time.

Hard coding lists

Once a Postcode and DPS are allocated to an address, it is unlikely the address will change, although this may be necessary from time to time. It can therefore be beneficial to 'hard code' address lists with at least the DPS. This makes it easier to access the information needed for the barcode for the addition of just two bytes per record (one kbyte per 500 records).

The checksum digit could also be hard coded, or could be allocated automatically at the time of printing through the use of a programme.

Postcode Information File (PIF®)

We offer a file which enables you to identify the exact delivery address when, for example, the Postcode is shared by several addresses, and match it to the correct DPS and checksum character.

The file gives the Postcode, DPS and checksum character, plus an extra field for Delivery Point Data (DPD) that uniquely identifies the address for example:

Postcode	DPS	Checksum character	Delivery Point Data
SO31 6XY	1A	S	1
SO31 6XY	1B	T	Sea Breeze
SO31 6XY	1D	V	3
SO31 6XY	1E	W	Rose Cottage
SO31 6XY	1F	X	5

At its most simple, the DPD will be the house number. For properties without a number, it will be a house name. For flats, the relevant information from the PAF® will appear. You should link this file either to PIF® or to an address list that has a high level of postcoding.

PIF® file size

The sizes for the various elements in PIF® are:
Delivery Point Information   50 bytes
Postcode   7 bytes
Delivery Point Suffix   2 bytes
Checksum character   1 byte
Total size per record   60 bytes

With 27.5 million records, the total size of the file is 1.5 gigabytes.

Format

PAF® is available on, DAT or Compact Disc, and you can choose between the following three file formats:

1. Main File: The PAF® Main File is a relational raw data product (this means that it contains grouped or related address data, as well as Mailsort codes and Delivery Point Suffix data) It is the master database containing complete Postcode and address information for over 28 million UK addresses. Main File contains no software and the raw data within it must be processed for use within IT applications.
2. Compressed Standard File: An expanded form of the Main File with approximately 28 million addresses in sequential order, as well as Delivery Point Suffix data.
3. Ranges File: A similar format to the Compressed Standard File, but takes up less space by ranging numbered properties on the same Postcode together in one record.

6.5.   Checksum character

If you don't use proprietary software from PIF or a Royal Mail approved co-supplier then you'll need to work out the checksum character yourself.

This involves using an algorithm, as described below. The checksum character is used as a means of error detection to ensure that the rest of the barcode is correct.

Working out the checksum character

Checksum characters can be automatically produced through the software available from co-suppliers. They are also available on the PIF®. They can however also be calculated by following these steps:

Step one
Use the table to find row and column references for the characters in the Postcode and DPS. Note that the sixth row/column is numbered 0 not 6.

Row	Column					
	1	2	3	4	5	0
1	0	1	2	3	4	5
2	6	7	8	9	A	B
3	C	D	E	F	G	H
4	I	J	K	L	M	N
5	O	P	Q	R	S	T
0	U	V	W	X	Y	Z

For example the letter S is in row 5 and column 5. Write these down in a grid like this (we've used an example Postcode of SN3 4RD and DPS of 1A), then add them up:

Postcode and DPS	S	N	3	4	R	D	1	A	TOTAL
Row	5	4	1	1	5	3	1	2	22
Column	5	0	4	5	4	2	2	5	27

Step two
Divide the totals by six (it is always six, no matter how many characters are in the Postcode), and note the amount left over. In this example:
goes into 22 three times with 4 left over
6 goes into 27 four times with 3 left over

Step three
Refer these 'left over' figures back to the table, finding the character where they intersect. For example, row 4 and column 3 gives the checksum character K.

Even if your 'left over' character is zero (i.e. 6 into 24 goes four times with zero left over), this will relate to a row or column on the grid.

6.6.   Using window envelopes

Windows may be included on envelopes for a variety of reasons so it is necessary to ensure that the inclusion of a window(s) does not physically impact the mail piece in such a way that may prevent our machines from processing it. The following window options only are permitted;

Option to have a window on the front	Option to have a window on the back	Example of use	Requirements
✔		The barcode and address is read through the window	See section 6.6.1
	✔	The barcode and address is printed on the front of the envelope and the window on the back is used for non-address information.	See section 6.6.2
✔	✔	The barcode and address is read through one window on the front and the window on the back is used for non-address information	See section 6.6.3

The front face is defined as the side containing the indicia and the delivery address.

6.6.1.   Barcode is read through a window
If you intend your barcode to be read through a window, please follow these requirements:
- The window position must be at least 15mm from the top, left and right edges of the envelope, and be at least 18mm from its bottom edge.
- The maximum gloss value of the window material should be equal to or less than 150 when measured at 60° in accordance with ASTM 2457 Standard test method for specula gloss of plastic films.
- The window haze must be equal to or less than 75% in accordance with ASTM D1003-00 Standard test method for haze of plastic films.
- The window envelope material must be robust enough not to become deformed, and fixed to the envelope evenly across the surface area it is in contact with.
- Any items placed inside the envelope must fit securely and not move around.
- The barcode must always be fully visible, with at least a 2mm clear zone around it. It must never skew more than 5° relative to the edge of the envelope. .
- The recipient's name may be tapped out above and to the right of the window, providing that the remainder of the address is fully visible at all times, and that the recipient's name taps back into the window.
- The number of windows on a single mail item must not exceed two.
- The windows must not exceed 50% of the surface area for one face of the mail item. The windows should not infringe any of the clear zones on the mail piece (please see figure 76 CBC template).

6.6.2.   Address and barcode are printed
If you intend your address and barcode to be printed on the front of the envelope and include a window on the reverse for non-address information please follow these requirements
- Only one window is permitted.
- The window must not exceed 50% of the surface area
- The window envelope material must be robust enough not to become deformed and fixed to the envelope evenly across the surface area it is in contact with

6.6.3.   Windows on front and back of envelopes
Envelopes with a window on each side, one on the front and one on the back can only be used if the following requirements are met;

- Minimum mail piece length is 212mm (maximum is 240mm)

- Maximum thickness 1mm
- Paper inserts only
- Maximum weight 20g
- The window on the front face must be rectangular with a maximum size of 174mm length and 45mm height. It must be positioned so it does not interfere with any required clear zonesThe window on the back must be circular with a maximum diameter of 48mm. The perimeter of the window must be 31mm ± 2mm from the bottom of the envelope and centred along the long edge.

7. Sealing

All items must be securely sealed on all sides, taking care to avoid too much gum. Envelope flaps may fold either to the back or front of the mailpiece. If the flap folds to the front (address side) of the mailpiece, the edge of the flap must not fall within the clear zones required for route and tag codes.

- You must not use metal clips or staples.
- The items must be sealed on all sides securely and continuously

One Piece Mailers are permitted, please contact your Access Account Manager for the full specification.

Sealing Tolerances

Opening Flaps must be sealed as far along the edge as possible. All remaining edges must be sealed.

7.1.   Letters presented in trays

For DL and C5 Letters with rectangular or trapezium shaped opening flaps presented in trays only, there is a maximum tolerance of up to 35mm from the left and right edges and 35mm from the top edge (as illustrated in figure 87) where the flaps do not have to be sealed[6]

Figure 87:Sealing for mail in trays
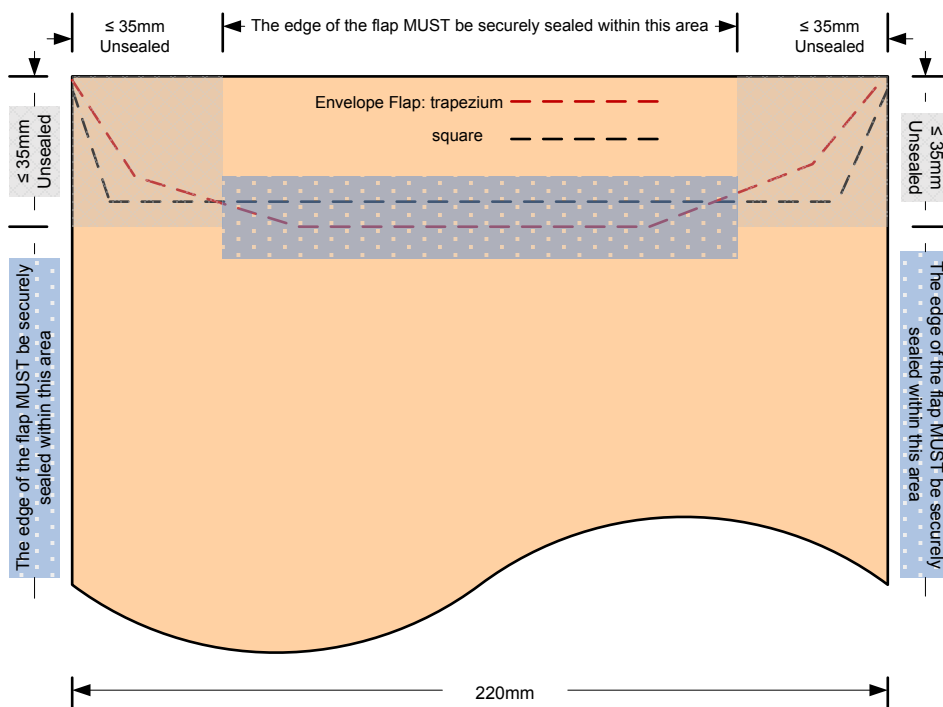
7.2.   Letters presented in bags

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[6]   An envelope manufacturing tolerance of 2mm is permitted i.e. the minimum Letter length here is 218mm.

For all other Letter sizes there is a maximum tolerance of up to 25mm from the left and right edges and 35mm from the top edge (as illustrated in figure 65 - 67) where the flaps do not have to be sealed

Figure 88:Sealing for mail in bags
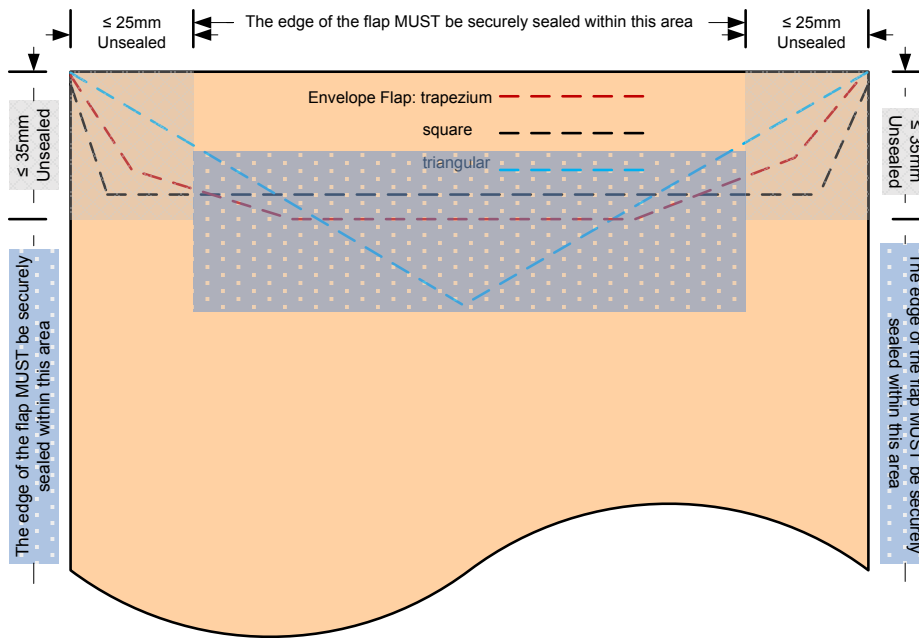


8. Can we check it for you?

Once you have passed the Quality Assurance process, if you are unsure whether a particular mailpiece complies with all the conditions, why not send us a sample in advance. We will advise you of any problems, and suggest ways of redesigning it. Please contact your Access Account Manager

9. Perforations

Perforations are defined as a series of holes in a mailpiece to make opening easy. The "cut" is the hole and the "bridge" is the paper that is left intact and subsequently torn when the mailpiece is opened

Roulette and Zip Tie perforations are acceptable, and requirements for these perforations types are provided in the following section. Please see figure 89 for elements of a perforation.

Figure 89:Perforations
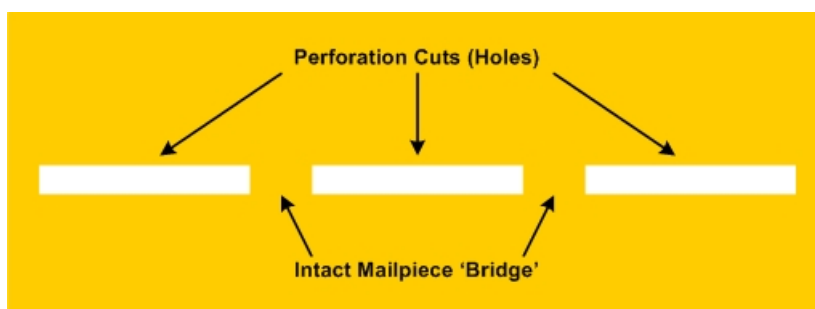
9.1. Zip Tie Perforations

- Zip Tie perforations are acceptable subject to the following requirements;
- Only one Zip Tie is permitted on each mailpiece
- The Zip Tie must be die cut into the mailpiece;
- The paper weight for the mailpiece must be ≥ 150 gsm;
- The mailpiece may be presented in both Landscape and Portrait orientation;
- The Zip Tie must always be placed on the back of the mailpiece;
- The Zip Tie may be positioned either horizontally or vertically, but the 'Tear' direction of the Tie is dependant upon the orientation of the mailpiece. Figure 90 and 91 below illustrate the back of a landscape and portrait orientation mailpiece, the orientation and 'Tear' directional requirements (the relative position of the Access Indicia on the front of the mailpiece being illustrated);
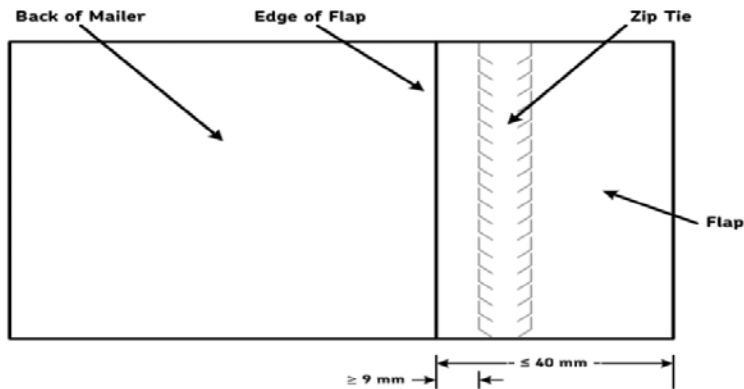
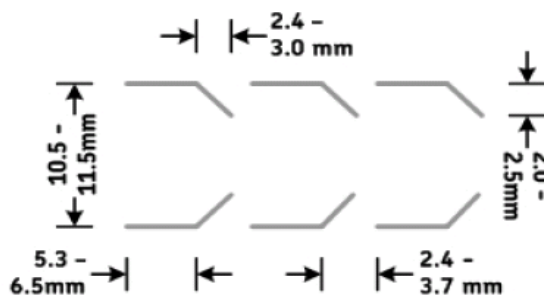**Figure 90:Zip tie orientation**
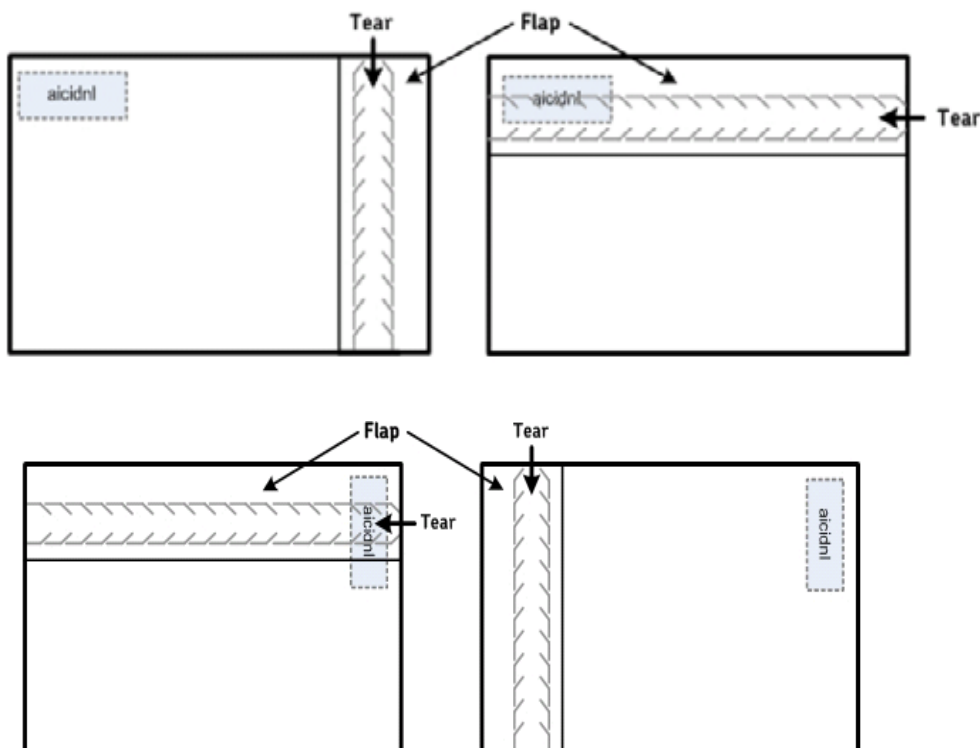
Figure 91:Zip tie orientation

- The Zip Tie must be located on a flap that is ≤ 40mm wide as illustrated in figure 92;
- The Zip Tie must be positioned ≥ 9mm from the edge of the flap as illustrated in figure 92;

Figure 92:Zip tie envelope

- The dimensional requirements for the cut of the Zip Tie are provided in figure 93

Figure 93:Zip tie dimensions

- All cuts and bridges must be of uniform size;
- The cuts must be rectangular in shape and have a width of ≤ 0.1mm;
- The glue used to seal the flap must not run out onto the outside of the mail item or produce protruding mounds on the mail item;
- The glue must be fully cured prior to presentation to Royal Mail;
- The tensile strength of the glue must be ≥ 4.5N and fibre tear must be exhibited on separation.

9.2.   Roulette Perforations

- The requirements for Roulette perforations are as follows:
- The perforations must be die cut into the mailpiece;
- The minimum paper weight must be ≥ 100gsm;
- The mailpiece may be in either landscape or portrait orientation;
- Perforations can only be present on any 3 sides, with only one of those sides being either of the longest sides;
- The perforations must be inset from the edge of the mailpiece by 12 ± 1mm;
- The cut of the short side perforations must be set at 1.3 – 2mm and with a bridge of ≥ 0.8mm as illustrated in figure 94. All cuts and bridges must be of uniform size;
- The cut of the long side perforations must be set at 0.5 – 1.4mm and with a bridge of ≥ 0.4mm as illustrated in figure 94. All cuts and bridges must be of uniform size;
- The cuts must be rectangular in shape and have a width of ≤ 0.1mm;
- The short side perforations must extend from the edge of the envelope;
- The long side perforations must not extend beyond the short side perforations;
- The indicia must not be printed over the perforations;
- The perforated edges must be securely sealed all round from the perforation to the letter edges;
- The glue must not run out onto the outside of the mail item or produce protruding mounds on the mail item;
- The glue must be fully cured prior to presentation to Royal Mail;
- The tensile strength of the glue must be ≥ 4.5N and fibre tear must be exhibited on separation.

Figure 94:Perforation dimensions

Short Edge Perforation   **Long Edge Perforation**
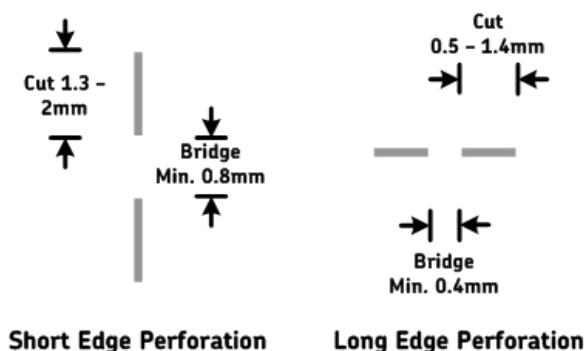
9.3.   Pressure seal envelopes incorporating Roulette Perforations

A Pressure Seal Envelope is a single sheet of paper which has been folded either two or three times to make a DL or C5 size mailpiece. The short sides need to be sealed and are opened by means of a standard perforation. One long side has to be a fold, the other will be sealed and have effectively a 'double' perforation to allow the item to be fully opened. The short sides have perforations through all layers of the letter (there will be 3 layers of paper for DL or 2 layers of paper for C5 size mailpieces) The long side has a Roulette perforation that does not go through to the front of the mailpiece. The item is opened by removing the short edge perforated strips first and then tearing back the tear off strip on the reverse.

Design & general requirements:
- The item is produced from a single sheet of paper
- Inserts are not permitted
- DL design must be > 100gsm (3 ply)
- C5 design must be > 150gsm (2 ply)
- Landscape or portrait permitted, not square [portrait mail pieces are not eligible for OCR]
- Perforations to be on both short sides
- The Roulette Tear strip to be on the back of the letter
- The longest edge from the indicia must be a fold (bottom edge for Landscape, left side for portrait)

Perforated strip (short edges):
- The cut of the Perforated Strip perforations must be set at 1.3mm – 2mm and with a bridge of ≥ 0.8mm
- The cuts must be rectangular in shape and have a width of ≤ 0.1mm.

Perforated strip (long edge on reverse):
- Only one Roulette Tear strip is permitted on each letter
- It must be die cut into the letter
- It must be placed on the back of the letter (i.e. the side which does not have the Delivery Address and PPI) and must run parallel to the long edge
- It must be > 10mm from the long edge of the letter & must be > 10mm wide
- The cut must be set at < 3.3mm and with a bridge of > 0.6mm as illustrated in figure 95 below.
- Each cut must be of uniform size
- Each bridge must be of uniform size
- The cuts must be rectangular in shape and have a width of < 0.1mm.
- The 'long' perforation may extend into the 'short' side perforations. If this occurs, it must be securely sealed i.e. the strips totally sealed along their length.
- The edge between the tear strip and the edge of the letter must be securely sealed along its entire length
- Sealing adhesive to be < 80 microns thick
- The glue must not run outside the mail item or produce protruding mounds
- Glue to be fully cured before the mail is presented to Royal Mail
- Tensile strength of the glue must be > 4.5N and fibre tear must be exhibited upon separation

Figure 95:Pressure seal envelopes
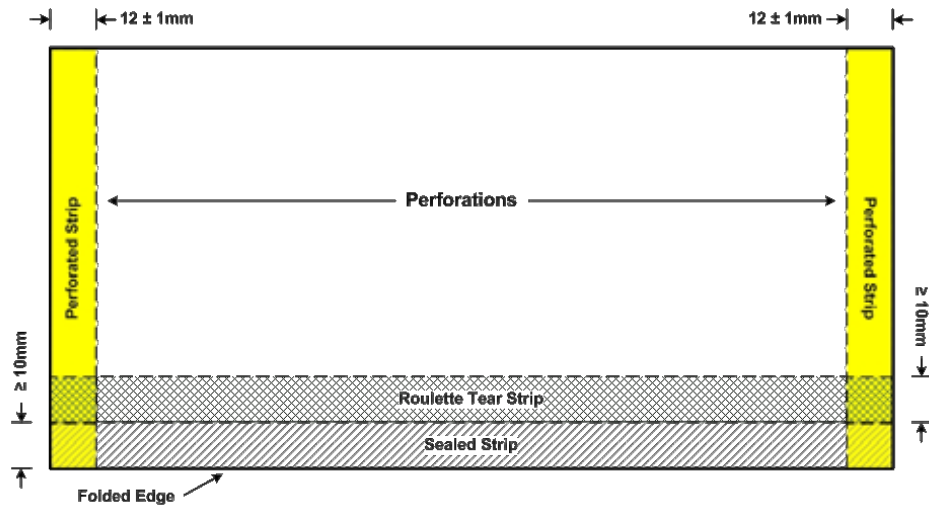
10. Single sheet mailer

Please contact your Access Account Manager to discuss the design and construction requirements for mailers created from a single sheet of paper
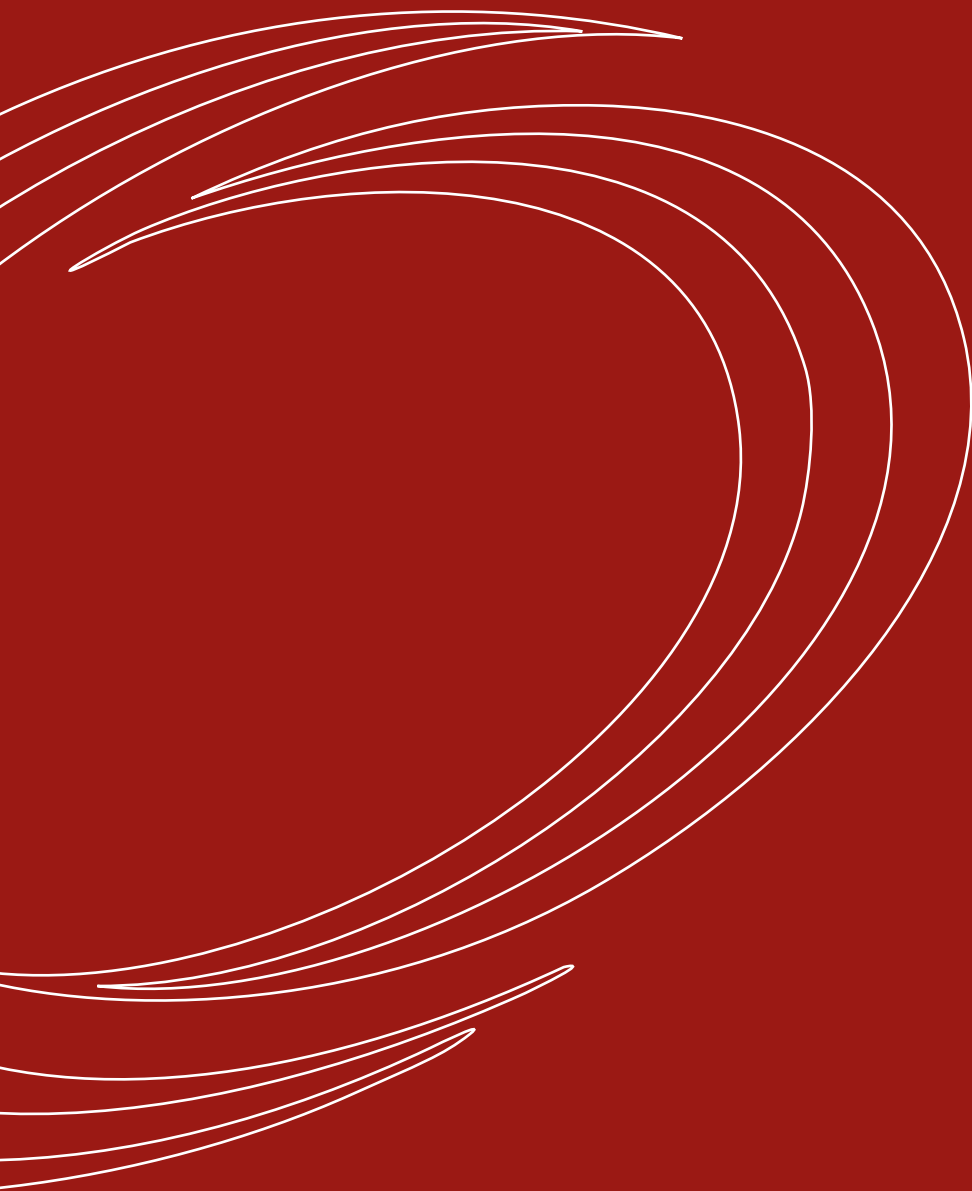
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