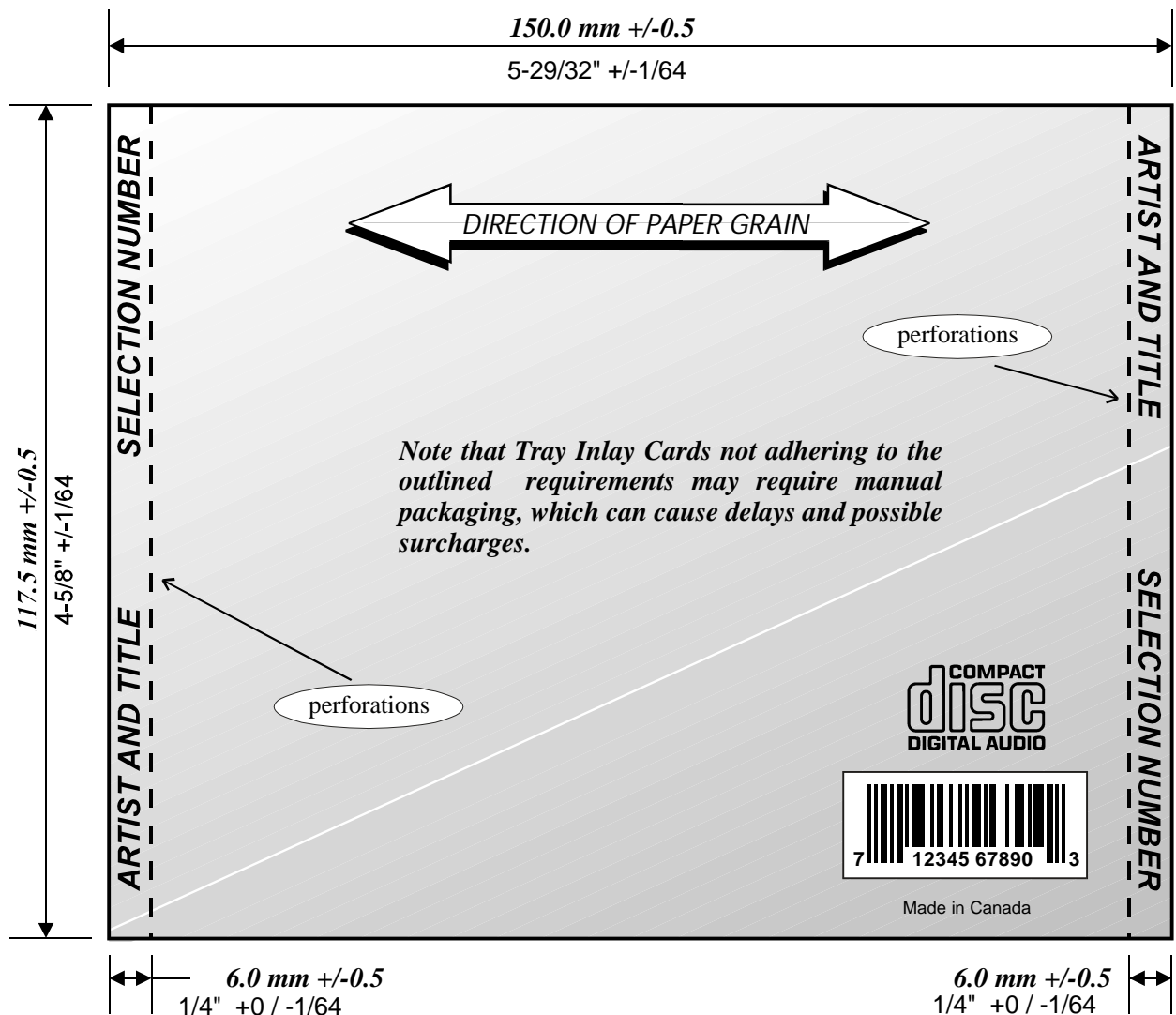


The following document outlines both packaging and printing specifications that are required, to allow for the efficient trouble free packaging of a Compact Disc. The purpose of these standards is to allow the packaging process to be as automated as possible, without the need for human interaction with the product. If the outlined standards are not adhered to, the result is a decelerated packaging process, which may result in a vendor surcharge. The specific areas that this document focuses upon are:

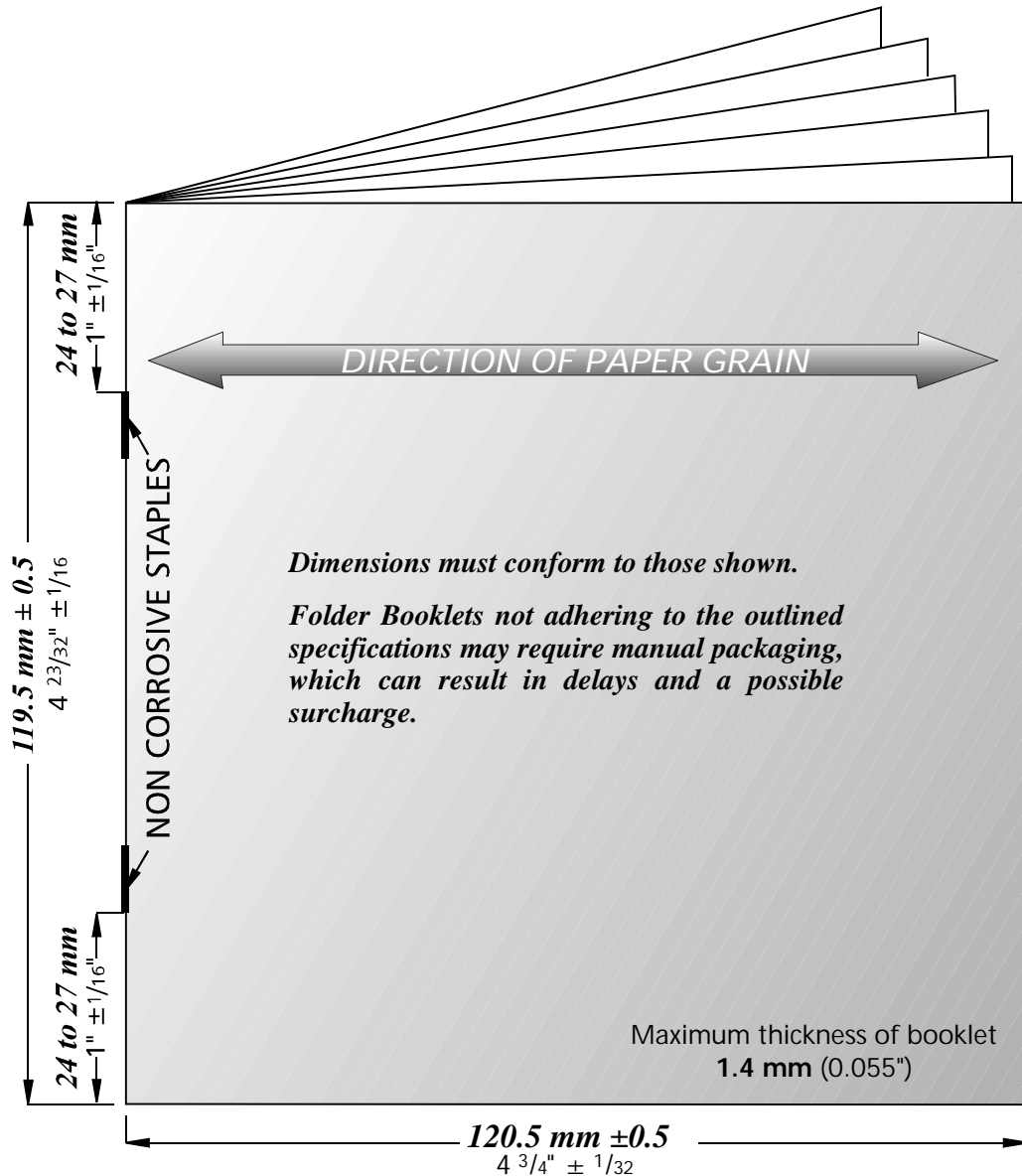
- ◆ **CD TRAY INLAY CARD SPECIFICATIONS**
- ◆ **CD RIGID BOOKLET SPECIFICATIONS**
- ◆ **CD FOLDER BOOKLET SPECIFICATIONS**
- ◆ **CD EXTRA INSERT CARD SPECIFICATIONS**
- ◆ **CD PRINTING AREA SPECIFICATIONS**
- ◆ **CD LABEL FILM SPECIFICATIONS**
- ◆ **CD STICKER SPECIFICATIONS**
- ◆ **CD "SLIM-LINE" J-CARD SPECIFICATIONS**
- ◆ **FILM SPECIFICATIONS FOR PACKAGING GRAPHICS**

## 2 CD TRAY INLAY CARD SPECIFICATIONS



- ◆ **PAPER STOCK:**
  - Weight 200M (100 lb.) / Thickness 0.13 - 0.14mm (5.0 - 5.5mil).
  - Should be wood-free art paper (pure cellulose preferred) and **must be coated** both sides. Observe paper grain direction.
- ◆ **PERFORATIONS:**
  - Must be 0.8-1.6mm long (1/32"-1/16") with 0.8mm gap (1/32") and perforated from printed side. **Score lines only are not acceptable.**
- ◆ **INFORMATION:**
  - The "Compact Disc" logo must appear along with its configuration (e.g.: **DIGITAL AUDIO**; **PHOTO CD**; **INTERACTIVE**; etc.).
  - The "Made in ..." should appear, especially if destined for export.
  - A *Selection Number* **must be shown** either on the spine, the back, or both. Alternatively, the 10 digits within the barcode can be used as a selection number, or we can issue a selection number to you..
  - If a UPC Barcode is used, it must conform to specs laid out by the *Uniform Product Code Council*. Only use high quality barcode film or artwork. To obtain a barcode and/or specifications contact: *Product Code Council of Canada* at (800)567-7084 or (416)510-8043.

### 3 CD RIGID BOOKLET SPECIFICATIONS



#### PAPER STOCK:

- Cover = 200 M (100 lb.) / thickness 0.13 - 0.14mm (5.0 - 5.5 mil)
- Inside text = 120-160 M (60-80 lb.) / thickness 0.08 - 0.10mm (3 - 4 mil).
- Stock should be wood-free art paper (pure cellulose preferred), and the cover must be coated on both sides.

#### MAXIMUM THICKNESS

allowed is 1.4mm (0.055"). Product must arrive perfectly flat, prefolded and dust free.

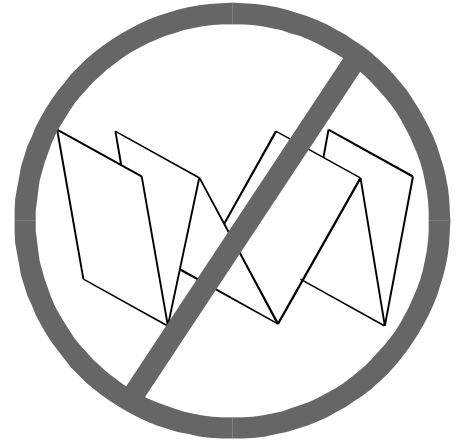
#### SELECTION NUMBER:

For identification purposes, the selection number of the product must appear on the back or front of the booklet, or inside the cover. Contact Customer Services if you do not have a selection number and they will allocate one for you.

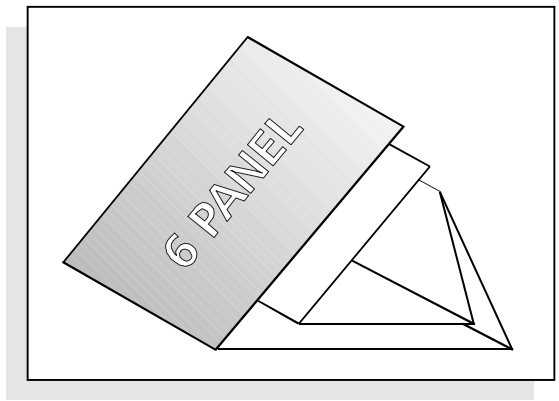
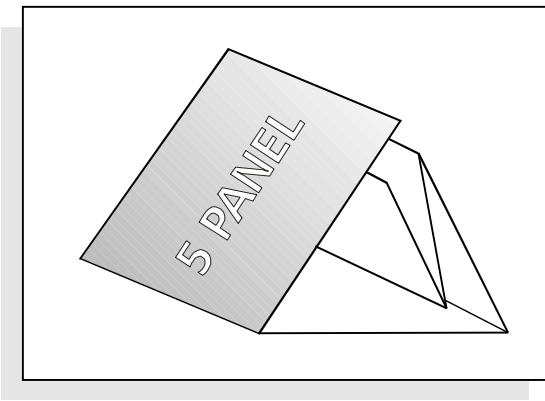
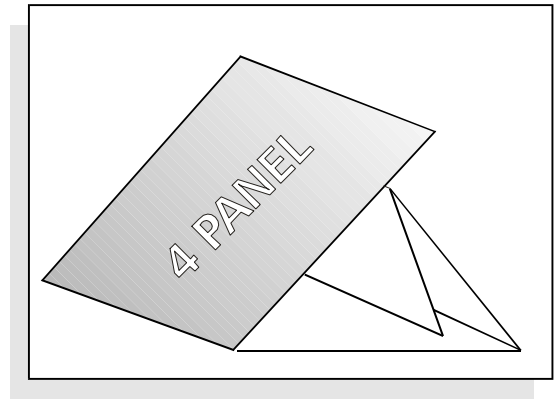
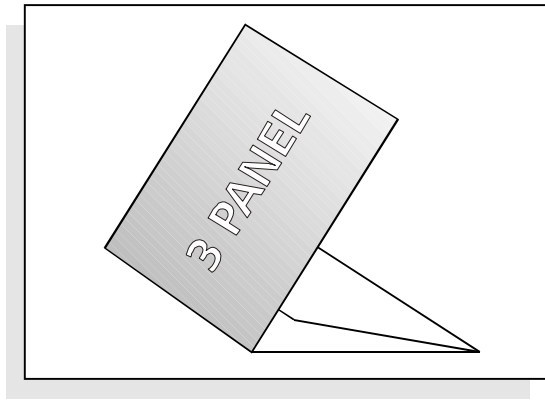
## 4 CD FOLDER BOOKLET SPECIFICATIONS

Folder Booklets can be used instead of stapled rigid booklets. Final dimension and thickness of Folder Booklets are the same as those for Rigid Booklets.

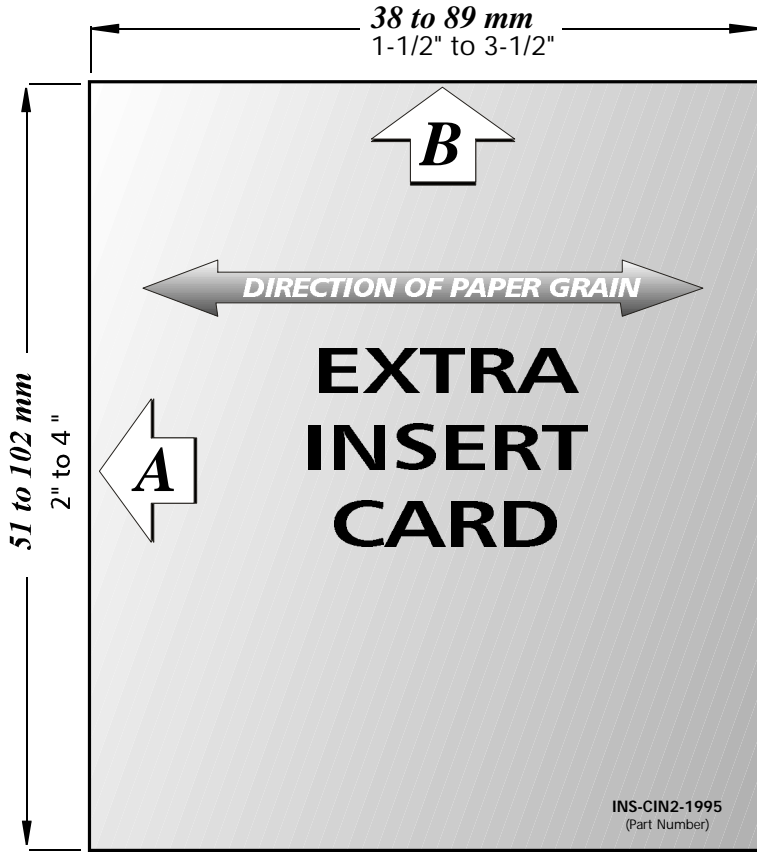
- ◆ A minimum 2 panel folder ( 1 fold ) is required for automated packaging.
- ◆ Folders with 2 to 4 panels (4 to 8 pages) should use 200 M (100 lb.) paper stock.
- ◆ Those with more than 4 panels should use 160 M (80 lb.).
- ◆ Stock should be wood-free art paper (pure cellulose preferred), and must be coated both sides.
- ◆ The selection or catalog number must appear on the back or front of the folder, or inside the cover.
- ◆ Folder Booklets must arrive pre-folded, flat, and dust free.
- ◆ Folder Booklets are to be folded as shown below.  
Because different visual layouts dictate different folding methods, verify with our Customer Service Dept. if a particular fold type not shown is acceptable for automated packaging.



***Folder Booklets not adhering to the outlined specifications may require manual packaging, which may result in a surcharge and possible delays.***



## 5 CD EXTRA INSERT CARD SPECIFICATIONS

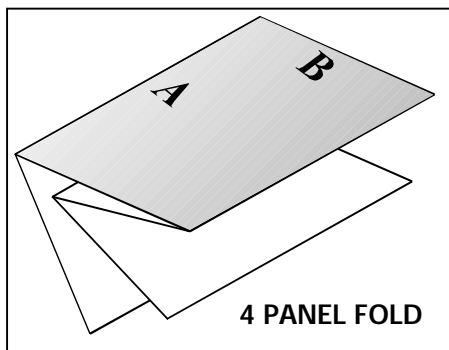
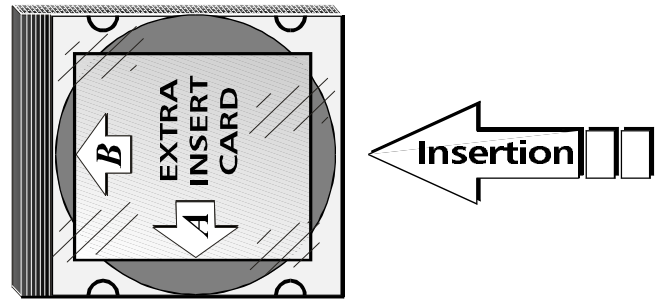
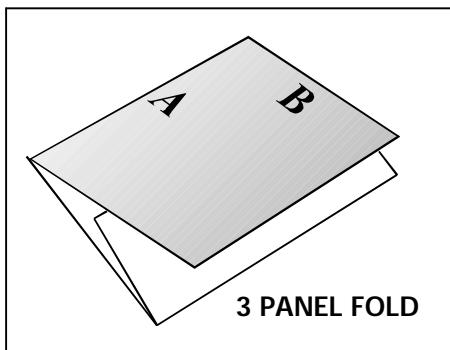


Extra Insert Cards are often used for promotional purposes. These cards are inserted into the jewel box in the final step. It sits loosely between the CD and the Booklet.

- ◆ For single panel cards, use 240-320 M (120-160 lb./6-8 mil) paper stock.
- ◆ Multi panels should use 200 M (100lb/5mil) stock.
- ◆ Maximum allowable thickness is 0.5mm (20mil).
- ◆ Stock should be wood free art paper, preferably coated both sides.
- ◆ Multi-panel cards should be folded as shown in the examples below.

*For folds other than those shown below, contact our Customer Service Dept.*

- ◆ Product must arrive flat, pre-folded, and dust free.
- ◆ An identification part number must appear on the front or back of the card.



- ◆ Unless otherwise specified by the customer, card insertion will be in the ***lengthwise direction***, which will normally be the "B" direction, unless the size of "B" is greater than "A".
- ◆ If ***widthwise insertion***, ("A" side) is required, then the dimensional limits as specified for "A" and "B" must be reversed.

*Extra Insert Cards not adhering to the outlined specifications may result in possible delays.*

## 6 CD PRINTING AREA SPECIFICATIONS

*Dimensions represent the diameter value.*

**120 mm**

Outer diameter of CD.

**116 mm**

Outer Limit of Printing Area. Also outer edge of the reflective.

**46 mm**

Inner mirror band.  
Inner Limit for Standard Printing.

**46 to 39 mm**

Identification Band.  
Product I.D Code is engraved in this area.

**39 mm**

Inner edge of reflective area.

**27 mm**

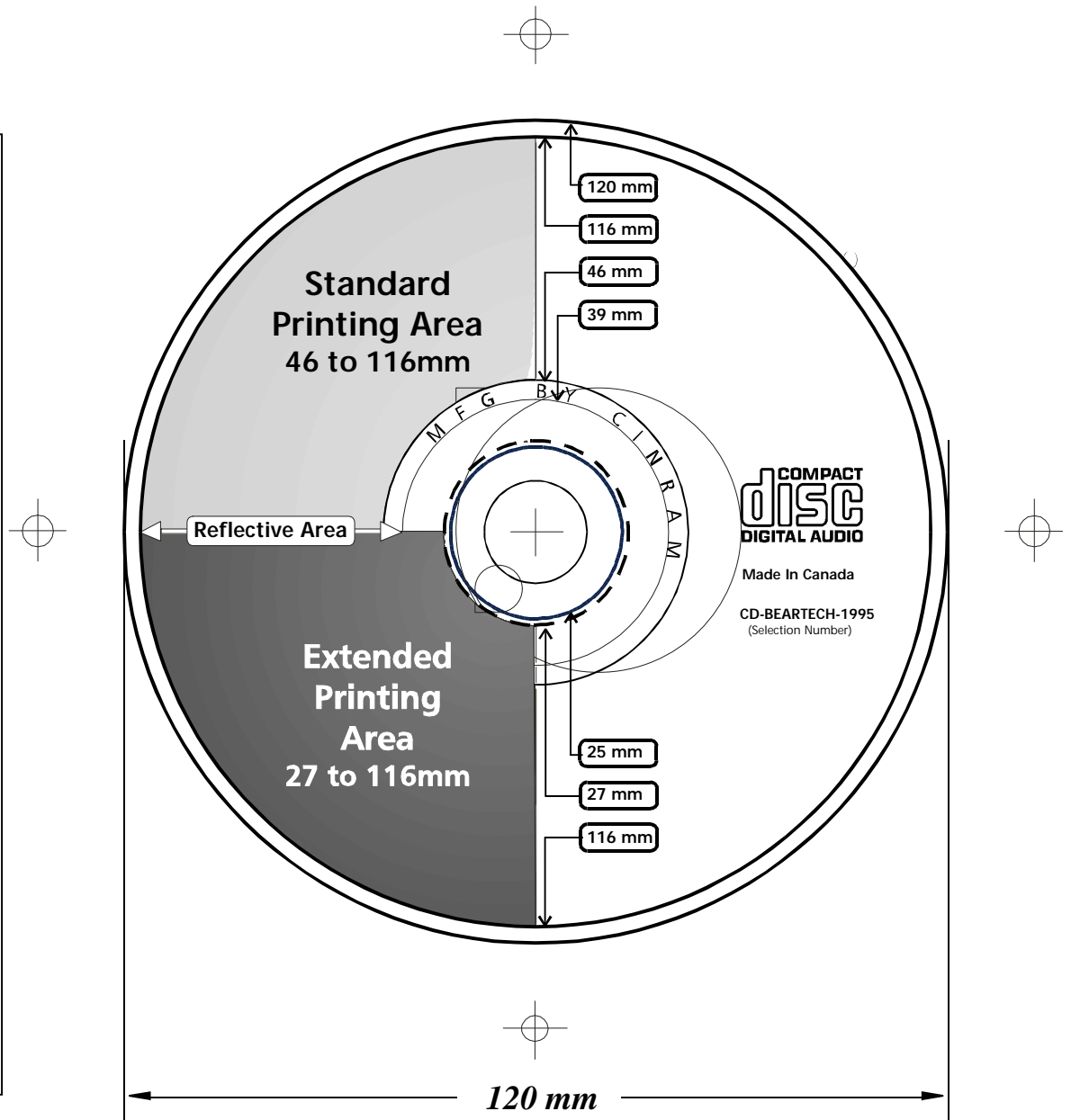
Inner Limit of Extended Printing.

**25 mm**

Grooved ring on disc.

**15 mm**

Diameter of hole.



### Standard Printing Area

is used whenever the CD's own reflective coating is to be used as the background color. The center portion of the disc up to 39 mm is not reflective, and will give poor contrast. In addition, although the Identification Band area between 39 to 46 mm is reflective, it contains etched characters which create a non-uniform background for the printed artwork.

### Extended Printing Area

(or any portion of it) can be used whenever a solid colour is printed as a background, or if the contrast difference is not a factor. If the background colour choice is of a translucent nature, the division between reflective and non-reflective can be noticeable. In these cases, it is best to use the Standard Printing area instead, or print down to the 39mm mark only..

**Typesetting**

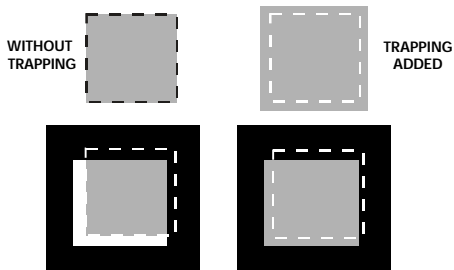
- **Standard Type** size is minimum 5 pts.
- **Reversed Knockout Type** is minimum 6 pts.
- Minimum **Line Width** is 0.2 mm (.008").
- **Trapping** (overlap) on multi-colour is 2 pts.
- **Serif typefaces** not recommended for small font sizes.
- **Center Cross Hair** and **Registration Marks** are required.
- **"Compact Disc" logo** must be shown.
- The **"Made in Canada"** should appear on the disc, especially if destined outside of Canada.
- **Selection Number** must appear on the disc.
- Graphics must be within the **Printing Area** specifications (see drawing).
- Up to **6 colours** can be printed.
- PMS colours shown in the current **Pantone-1000 Colour Selector** are standard.

Example of 5pt Standard Type    **6pt Reverse Knockout**    This box uses 0.2mm lines



**Trapping**

A trapping spread of 2 pts is required on multi-colour projects. Without trapping, slight registration variations during printing, as seen in the enlarged example below, will cause gaps wherever a lighter object is surrounded by a darker colour. Adding a 2pt outline of the same color around the object resolves this.



**Film Specs**

- Films are to be prepared **Emulsion Side Down, Right Reading, Film Negative** (positives can be processed at an additional cost).
- **Colour choice** must be specified for each film.
- **Center cross hair** and **registration marks** are needed on each film.
- **Optionally**, simple label graphics (no CMYK or halftones) can be supplied either on **computer diskette** (CorelDraw5 .cdr PC format + fonts), or **high quality b&w artwork** (100 to 200% size). These services entail an additional cost. For different formats (including MAC), or other information, contact **Customer Services**.

**Halftone Image Process**

- 85 **lines per inch** separation
- 15 - 85% **tonal range**
- Elliptical **dot shape**
- **Film angle** 30 degrees
- A solid colour **background** is recommended.

**Four Colour Process - CMYK (Picture Discs)**

- 85 - 100 **dots per inch**. (85 preferred)
- 15 - 85% **tonal range**.
- Elliptical **dot shape**.
- Total **dot density** between 260 - 280.
- Smallest **dot size** 102 microns.
- Colour separated **film angles** as follows:  
*yellow - 0 degrees      cyan - 15 degrees*  
*magenta - 45 degrees    black - 75 degrees*  
*GCR (gray composition removal) technique.*
- A set of **colour keys** is required for proper colour matching.
- A solid white fifth colour **background** is recommended.

*Note: A PMS colour printed on a reflective background will appear slightly different when compared to the same on a white background.*

The "Compact Disc" logo is required on the graphics to show the consumer the CD's format, and that it conforms to the Philips/Sony standards.



Its location is not specific, but must have a contrast of at least 50% with the background, and should not be outlined or framed.

## 8 CD STICKER SPECIFICATIONS

### Sticker Roll Specifications

**A = Gap Between Stickers**

3mm - 5mm (1/8" to 3/16")

**B = Length (regular shape)**

25mm - 70mm\* (1" to 2-3/4")

**C = Width**

19mm - 70mm\* (3/4" to 2-3/4")

**D = Length (offset shape)**

29mm - 70mm\* (1-1/8" to 2-3/4")

**E = Roll Core Diameter**

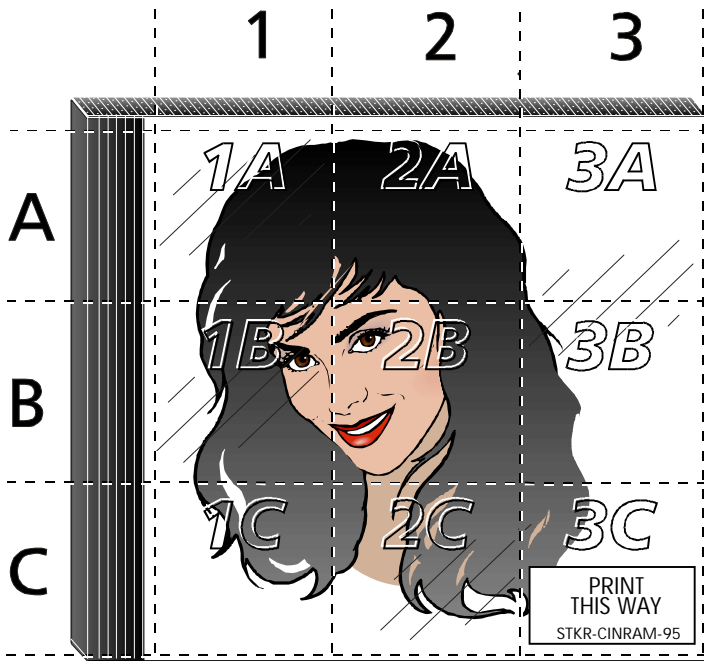
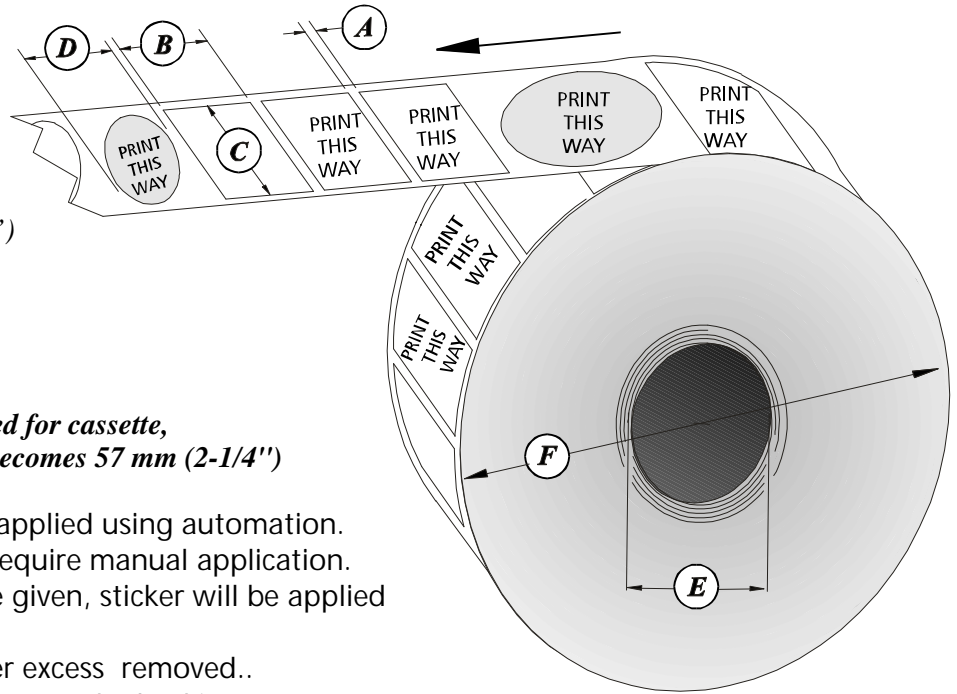
76mm ( 3")

**F = Maximum Roll Diameter**

280mm (11")

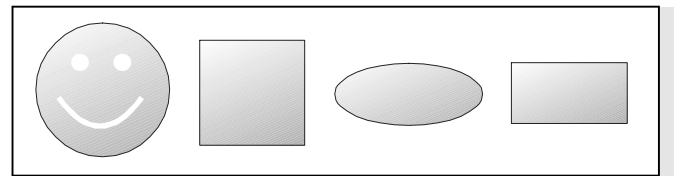
\* **Note:** If same sticker is to be used for cassette, then the max 70 mm\* (2-3/4") becomes 57 mm (2-1/4")

- ◆ Only one front sticker can be applied using automation. Other front, or back stickers require manual application.
- ◆ Unless special instructions are given, sticker will be applied over the film wrap.
- ◆ Labels to be die cut with outer excess removed.
- ◆ There should be no perforations on the backing paper.
- ◆ Gap between stickers must be 90 degrees to the length of the roll.
- ◆ A product or part number must be shown on all stickers, regardless whether or not they are to be automatically or manually applied.



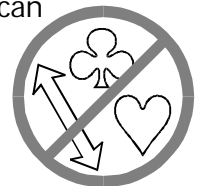
### Orientation & Placement

- ◆ Note the orientation of print relative to the CD Graphics.
- ◆ Instructions as to the sticker's location must be included with the product's order. Use the coordinate system shown (Columns 1 to 3, Rows A to C. e.g.: Right Top is location 3A).



### Sticker Shapes

- ◆ Only simple geometric shapes can be applied using automation.
- ◆ Transparent stickers cannot be applied automatically.

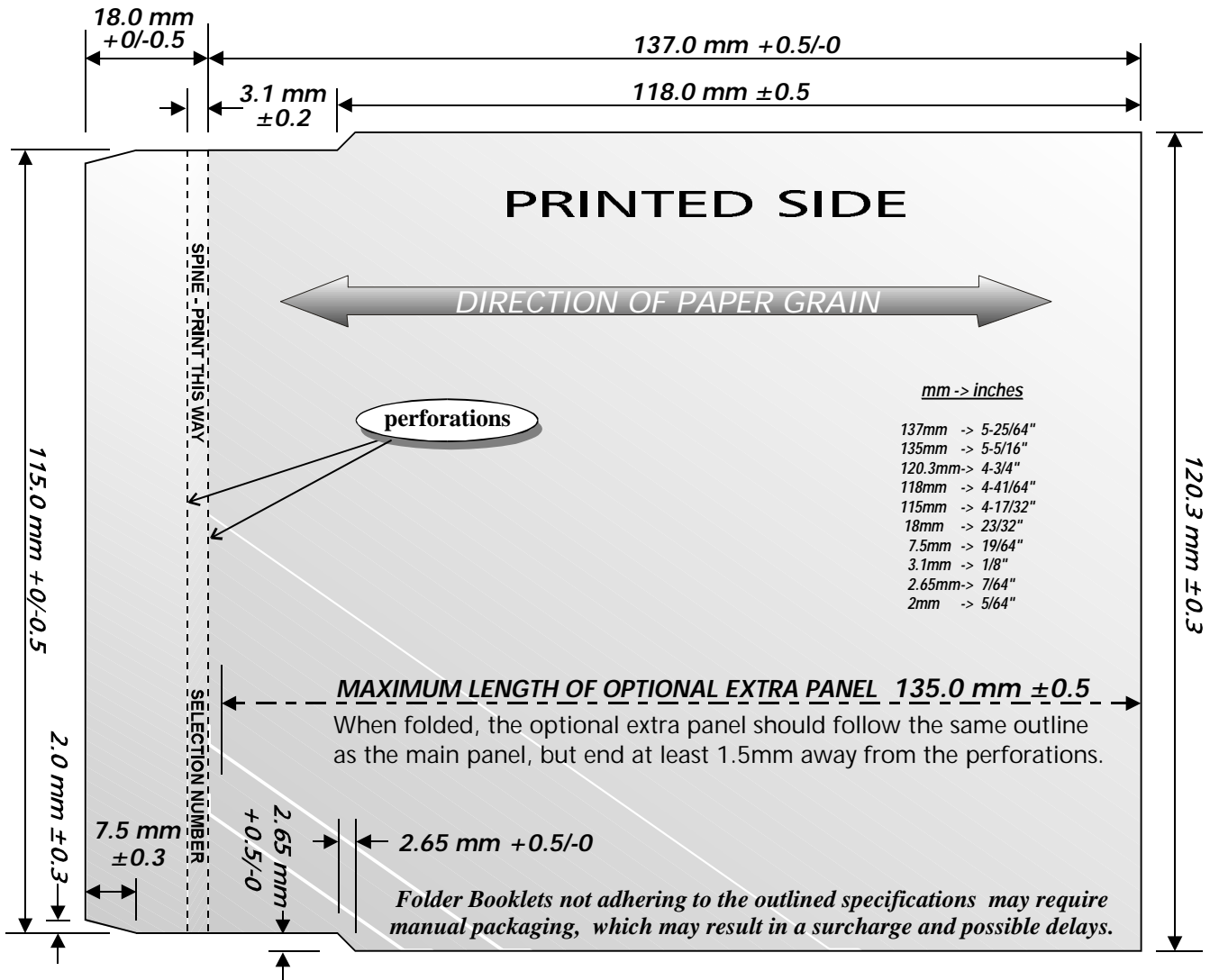


## 9 CD "SLIM-LINE" J-CARD SPECIFICATIONS

Single "Slim-Line" cases are two piece clear CD cases which hold a single CD, with about 3/4 the thickness of a regular CD jewel box. Although not as robust as the jewel box, it's main attraction is that it can display the J-card's graphics on one side, and the CD's own printed graphics on the other. The back of a single panel card, or the front on the extra panel, serves as the background for the displayed CD. Please note that we have no control over the orientation of the CD graphics in it's case.

- ◆ Paper stock should be wood-free art paper (pure cellulose preferred) with a weight of 200-240 M (100-120 lb./ 5-6mil). Observe direction of paper grain.
- ◆ Stock must be coated both sides. Avoid UV type coatings.
- ◆ A selection number is required, preferably on the spine.
- ◆ Cards are to arrive flat and dust free. Optional extra panel must be prefolded.
- ◆ Perforations must be 1.5-3.0mm long (1/16-1/8") with 1.5mm gap (1/16"), and perforated from the printed side. Cuts should start 1.5mm from edge of card.

*Score lines alone are not acceptable.*



**A) Physical Characteristics:**

- Negative
- 150 Line Screen
- Right Reading
- Emulsion Down

**B) Screen Angles (4 Colour Process Offset or Gravure):**

- Black, Magenta and Cyan 30apart; yellow 15 apart.

**C) Undercolour Removal (UCR):**

- Saturation of colours not to exceed 280%

**D) Background Colour Support:**

- For single colour work with solid background, supply a second hit with 0.002" stayaway as a means of better controlling ink density, hickies and dot gain.
- For 4 colour process work with solid black background, support the black background with 60% cyan, 50% Magenta, and 40% yellow all with 0.002 stayaway

**E) Dot Gain Control:**

- Linear compensation should be set to allow for 17% midtone dot gain. E.g. to achieve a 50 % printed dot, supply film with (50/1.15) 43.5% dot.
- For black solid background with screened type, the screen value must not exceed 80% of the expected value.

**F) Type:**

- Reverse type should not be smaller than 5 point
- Black type **must** overprint (do not knockout) to avoid misregistration
- Foil Stamping copy must be 8 point or greater; line thickness must be 1 point or greater.

**G) Trap:**

- Trap colour to colour as follows:
- Litho to Litho 0.003" - 0.005" trap
- Litho to Gravure 0.015" trap
- Gravure to Gravure 0.010" trap
- Metallics are run 1<sup>st</sup> down in most cases and should be supplied with size as knockout and in most cases 0.002" trap
- Foil stamping **must** be treated as an overprint (do not knockout).

**H) Register Marks:**

- All films should include register cross hairs reproduced exactly from the dieline positive.
- All film should include a centre mark registered to the cross hairs on the dieline positive. These should be positioned outside the work approximately ¾" away from the outside edge of the film.

**I) Film Identification:**

- All film should be identified as follows:
- Customer Name
- Item and Description Code
- Colour
- Date/Revision Date
- Film House
- CAD # of the applicable dieline positive

**J) UPC Barcodes:**

- The following specifications apply:
- Bar width reduction (BWR) 0.0015"
- Magnification: Minimum 80% (100% Preferably)
- Quiet Zone 10X Minimum
- R min./R max. 50
- Symbol Contrast 70
- Test Criteria: Pass Grade ANSI Grade A (1)
- Bar Alignment: Press Direction Preferably (Picket Fence Style)

**PROOFS:****K) Laminate Hard Proof:**

- Use Matchprint or equivalent preferably on the applicable production grade substrate.

**L) Film Generation:**

All proofs **must** be made from **final supplied** film negatives to ensure reproducibility.

**M) Die Reference:**

The applicable dieline positive should appear on all proofs.

**N) Pattern Coating:**

- The type and positioning of all pattern coatings should be clearly indicated with separate overlays.

**O) Special Colours:**

- All special colours should be supplied with a colour chip and/or clearly indicate the PMS number specifying the desired print colour.

**P) Foil Stamping & Embossing:**

- All foil stamping and embossing should be clearly indicated with separate overlays.

### **INKS:**

#### **Q) Shades:**

Ink shades are to be based on SWOP standards

#### **R) Ink Densities:**

- Ink densities are to be established within 5D to the SWOP standard based on using an X-Rite Model 404 Reflection Densitometer

#### **S) Press Printing Sequence:**

- The following sequence applies for printing 4 colour process.
- 1<sup>st</sup> Down      Black
- 2<sup>nd</sup> Down      Cyan
- 3<sup>rd</sup> Down      Magenta
- 4<sup>th</sup> Down      Yellow

#### **T) Press Proofs:**

- Should print in the press direction dictated by the layout of the production run.

### **OTHER:**

#### **U) Product Families:**

- Film for product families incorporating different versions of the same graphics should be cross referenced to highlight the need for production controls to ensure consistency among all members of the family.

### **GLOSSARY:**

**V) Stayaways:** A procedure performed on film to fatten or spread reverse copy in base colours (supports, second hits) in order to prevent the appearance of misregistered copy.

**W) Support Colours:** Combinations of yellow, cyan and magenta printed over black:

- to create a denser black
- to avoid over saturation of the black in the midtone range of the quad
- to avoid over saturation of the black in copy or in barcodes
- to provide for better ink replenishment (takeoff) of the yellow, cyan and magenta if needed in other parts of the image.

**X) S.W.O.P.:** Sheetfed Web Offset Printing

**Y) Trap:** The degree of overlapping of one colour in relation to another in order to accommodate normal print register variation.