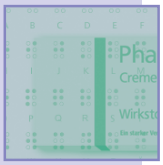
Let Your Fingers Do The Talking:

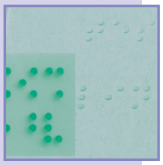
Braille on Folding Cartons

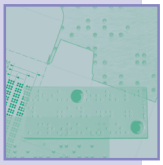
IADD
INTERNATIONAL ASSOCIATION of DIECUTTING and DIEMAKING

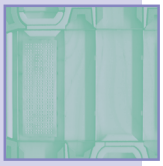
in cooperation with

Braille Authority of North America









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1 Preface

In 1825, Frenchman Louis Braille (1809-1852) invented a reading system for the blind through which the alphabet, numbers and punctuation marks were represented in a tangible form via a series of raised dots. The braille system established itself internationally and is now in use in all languages. While A to Z is standardized, there are, of course, special characters which are unique to local languages.

The requirement for braille on pharmaceutical packaging stems from the European Directive 2004/27/EC – amending Directive 2001/83/EC (community code to medicinal products for human use). This Directive includes changes to the label and package leaflet requirements for pharmaceuticals (which will not be discussed in this booklet). It requires pharmaceutical cartons to show the name of the medicinal products and, if need be, the strength in braille format.

The influence of the European Directive is having an increasing impact on Canada, USA and other countries worldwide through the pharmaceutical packaging companies that produce for or market at an international level. In recognition of this influence, the International Association of Diecutting and Diemaking (IADD) decided to take a proactive approach by initiating a Braille Task Force with a mandate to research and develop a recommended standard for the paperboard, graphic arts, printing and packaging industries in the USA and Canada. To ensure international continuity, the IADD, in cooperation with the Braille Authority of North America (BANA), endorses the implementation of the recommended standard in this booklet.

This code of practice for the standardized fabrication of braille on folding cartons contains established rules which form an easily-comprehensible standard for the technical implementation of braille on folding cartons. It also offers guidelines for a sequence of steps from the creation of the artwork files to the delivery of the folding cartons to ensure the integrity and security of the braille content. However, it is understood that deviations from this standard and guidelines may be valid and necessary in some cases – either for technical or organizational reasons – to meet the requirements of specific customer/folding carton manufacturer agreements.

References

This document is published by the International Association of Diecutting and Diemaking (IADD) in cooperation with the Braille Authority of North America (BANA) and other interested industrial organizations. The IADD is a not-for-profit international trade association serving diecutters, diemakers and industry suppliers worldwide. The IADD serves the industry by providing global leadership, a catalyst for success and recognition of the benefits to consumers that the industry provides. The vision of the IADD is to be the definitive resource for the diecutting converting industry, bringing together and serving people who convert soft to semi-rigid materials into various cut parts. By sharing collective knowledge, expertise and information, the IADD leads and stimulates creativity and innovation, provides opportunities for professional growth, serves the diverse needs of all industries engaged in diecutting and demonstrates commitment to ensuring progress through participation.

IADD and BANA wish to acknowledge the folding carton associations listed on the back of this publication, especially ECMA (The Hague), FFI (Germany) and Aspack (Spain) for their documentation, manpower and expertise.

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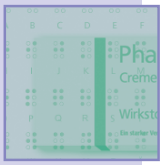
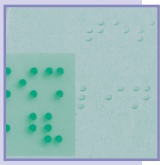
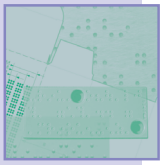
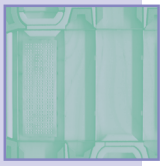
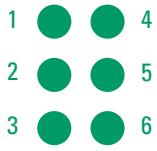


2 Traditional Braille Cell and Braille Characters

The traditional braille "cell" of a braille character consists of six dots, positioned like the figure "six" on a die, in two parallel vertical lines of three dots each. They are numbered as follows:

Top left dot 1
Dots below 2 and 3
Top right dot 4
Dots below 5 and 6

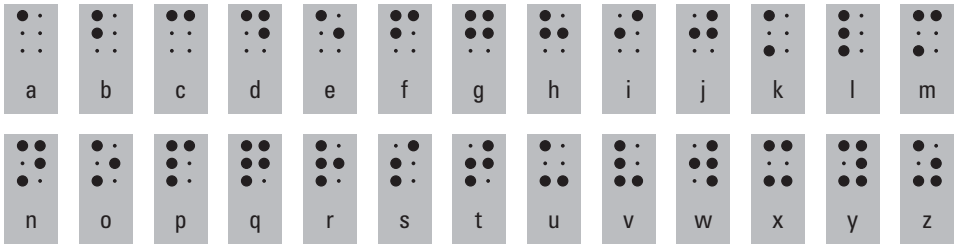


From the six dots that make up the braille cell, 64 different characters can be created.

Reading direction of braille is the same as for regular type, and the rules for hyphenation that apply to regular typefaces also apply in braille.

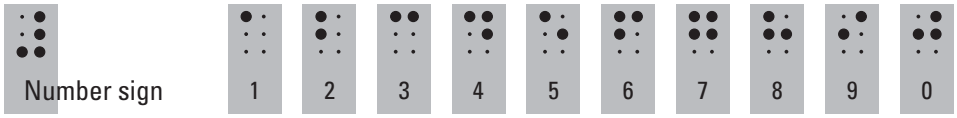
The European Commission's guidance on braille requirements for labeling and packaging and the Braille Authority of North America guidelines for Canadian and USA pharmaceutical companies, distributors and marketing agencies both recommend that an uncontracted braille system should be used. In uncontracted braille, every individual letter of the alphabet, punctuation mark, etc. is represented by its own braille character(s).

Letters - Internationally Standardized

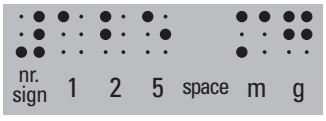


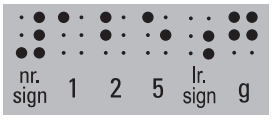
Note: There is no capitalization in braille text on folding cartons.

Numbers - Internationally Standardized



Note: To indicate numbers, a number sign is followed by the letters a-j. The effect of the number sign continues until a space or a letter k-z occurs. When numbers are immediately followed by letters a-j, a letter sign is required. See example:





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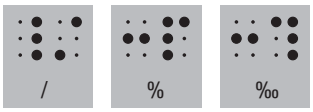
Punctuation marks

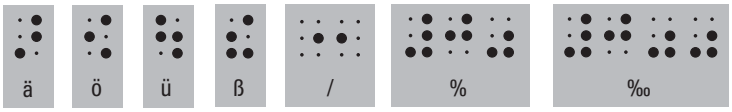
Note: In ink print, thousands separators and decimal points may be either "." or "," depending on the country, but in braille they are usually as shown above.

Examples of internationally different special characters used in six European languages

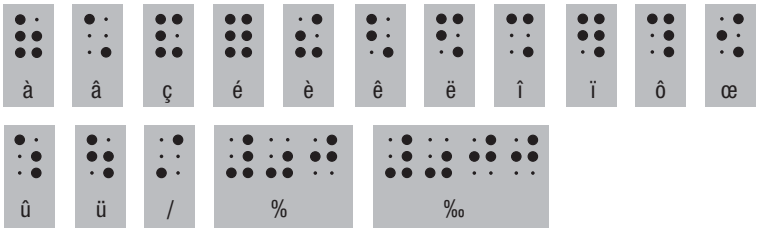
English



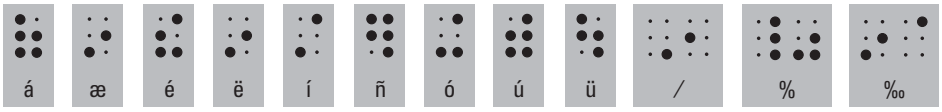
German



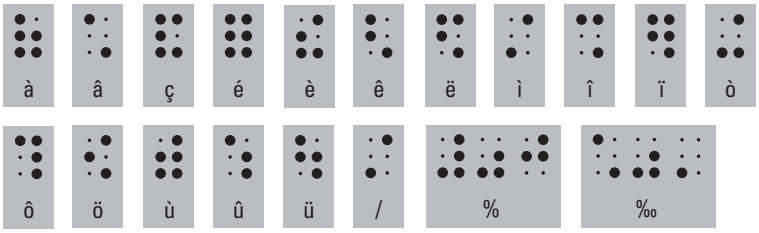
French



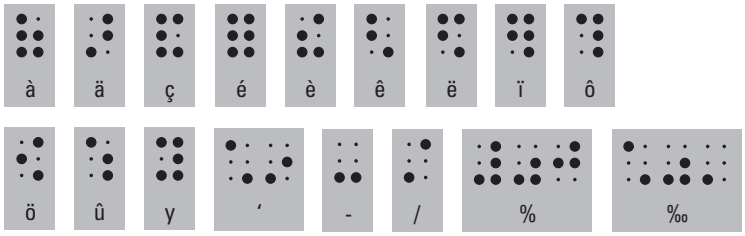
Spanish



Italian



Dutch

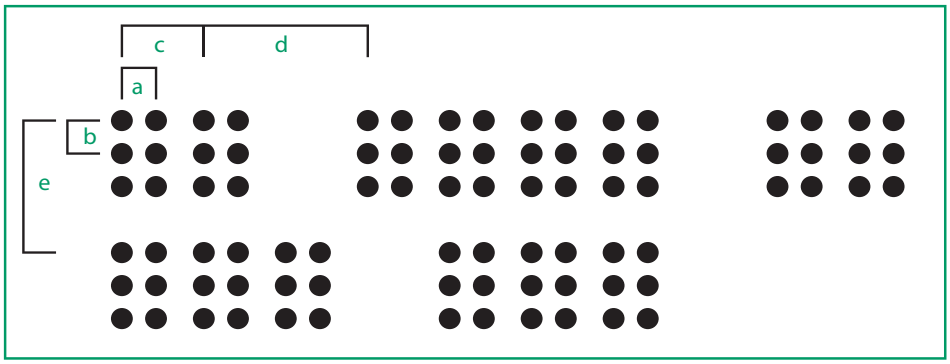


NOTE: While every care has been taken to check the accuracy of the symbols used in each language, IADD cannot guarantee the accuracy of this document. Additionally there have been recent changes to British and Dutch braille, and we are advised that there may also be changes in other languages in the future.

3 Standardization

To establish a common standard throughout Canada and the United States of America, the International Association of Diecutting and Diemaking has specified "IADD Can-Am Braille," which takes into account the major braille fonts currently in use throughout Canada, USA and Europe (ECMA Euro Braille).

- The diameter at the base of the dot is 1.6 mm; this is also the diameter on the female matrix and the diameter of dots shown in the artwork file.
- The dot spacing is exactly 2.5 mm (from dot center to dot center).
- The character spacing amounts to 6.0 mm (from center to center).
- The hyphenation spacing is 12.0 mm (from center to center).
- The line spacing is 10.0 mm (from center to center) with a tolerance of +0.0 mm/-0.1 mm.
- With regard to the dot height of the embossing on the surface of a folding carton, it is recommended that this is determined visually since the deformed carton board is likely to recover slightly over time. The maximum tolerance level is reached when the surface of the folding carton substrate starts to burst.



Dot matrix

Dimensions:
a = 2.5 mm
b = 2.5 mm
c = 6.0 mm between two letters of one word
d = 12.0 mm hyphenation
e = 10.0 mm + 0.0 mm /-0.1 mm line spacing

Positioning the braille message (in alphanumeric characters)

The braille text must also be set in regular type outside the die-line. Reading direction and hyphenation rules for both braille text and regular type must be the same.

4 Technical Requirements

The dots of the braille text must be clearly perceptible by human touch. However, on folding cartons, the needs of both seeing and visually impaired people must both be met, though they are very different. While the visually impaired require very strong braille embossing to enable them to read the text, embossing can lead to breaks in the carton surface which could impair legibility and visual aesthetics for sighted people. The target must be to achieve a compromise so that both blind and sighted patients can easily identify their medicine.

To ensure the best possible readability, the machine or press operators are to be instructed and encouraged to work towards achieving the highest dot height that the process, tooling, folding carton substrate type and thickness will permit without causing aesthetic issues that would be deemed to be unacceptable.

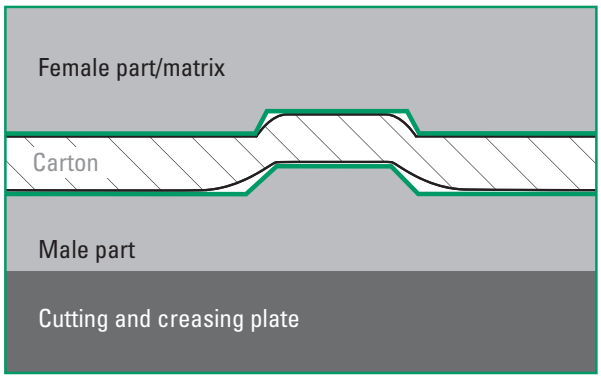
Following the embossing process, the "perfect" dot is exposed in subsequent processes to mechanical and climatic influences which could lead to a slight deterioration.

Material selection

In general, long fiber, short fiber, internal recycled pulp and post consumer (recycled) carton board can be used. It must be remembered that with all of these board types, it is not possible to prevent minimal variation in embossing heights on the same folding carton or in the same production batch.

5 Fabrication

These guidelines relate to the fabrication of braille text according to the latest technical standards - i.e. cutting, creasing and embossing in one pass on a flatbed cutting and creasing machine. Braille text can generally be placed on any major surface of a folding carton (see A1, B1, A2, B2 on diagram, p. 10), but for technical reasons it may not be possible to locate it on more than one panel of any carton.



Braille embossing

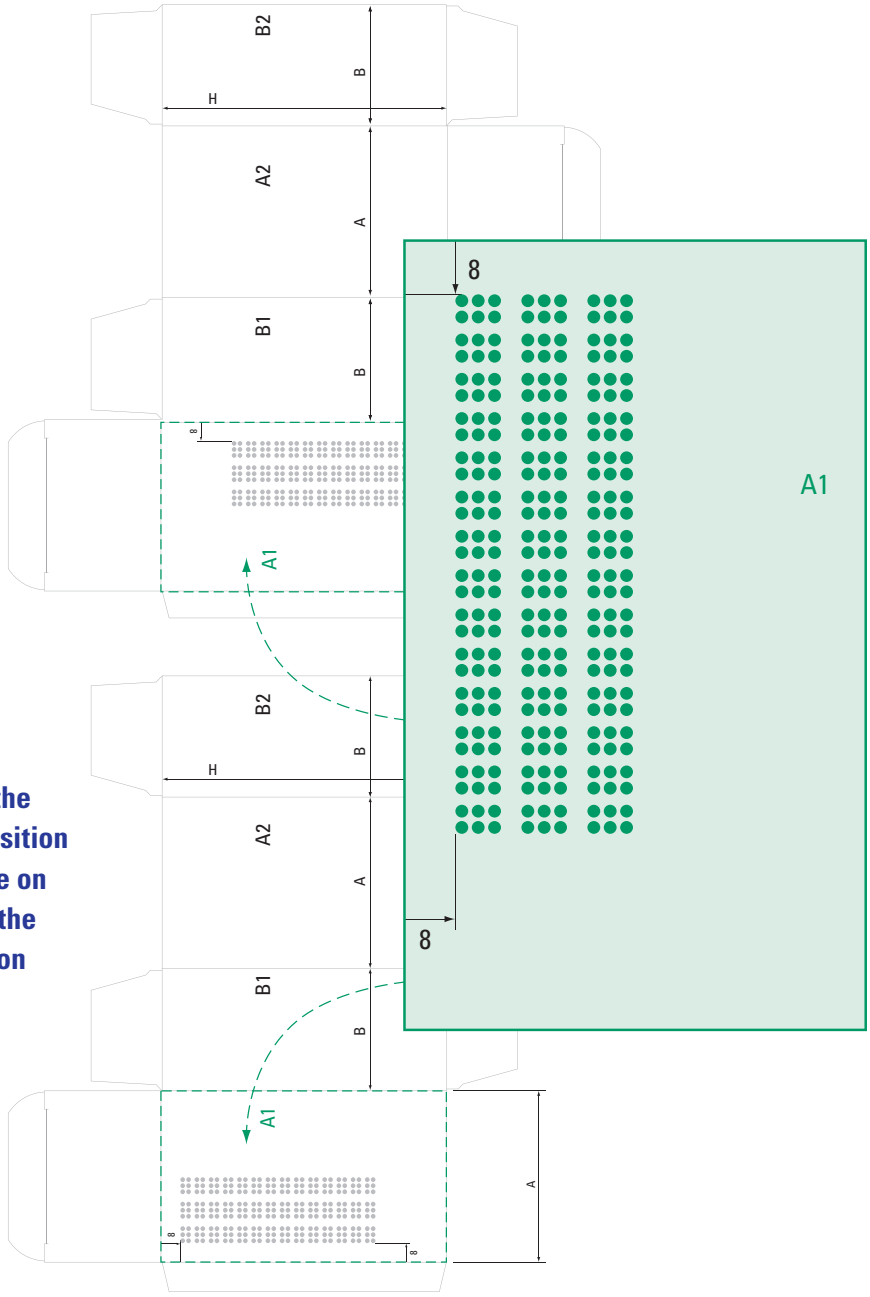
The goal is to create a product-neutral cutting and creasing tool; i.e. only one “master” cutting and creasing tool (steel rule die) should be used for all folding cartons of the same size and profile. In order to achieve this, a universal female matrix is positioned in the largest panel of the folding carton.

The braille text is embossed by the “product individual” male embossing die. This facilitates the minimization of adjustments to the individual carton, saves set-up time and reduces costs. If an individual cutting and creasing tool is required for a particular package, substantial additional costs will be incurred.

A second method of braille embossing is performed at the folder gluer process, rather than the flat bed technique or on the steel rule die as mentioned above. This method uses a metal female embossing wheel that has all the potential usable holes machined into it. The braille text is embossed by a “product specific” flexible metal male embossing plate (commonly machined from thin brass) which is wrapped and registered around an adjacent metal wheel and registers to the female embossing wheel. In some cases, the male embossing is machined directly onto the adjacent steel wheel.

Positioning of braille

The distance between the braille embossing location and the center of the cutting and/or creasing lines must be 8 mm (measured from the edge of the dot). The position of the universal female matrix on the chosen panel of the carton – e.g. A1 – must be decided by the customer. Braille texts cannot be applied to locations on the carton where there are barcodes (EAN/PZN) or where labels/Bollini or perforations are applied. Maintaining these standards will ensure lowest tooling costs and set-up times.



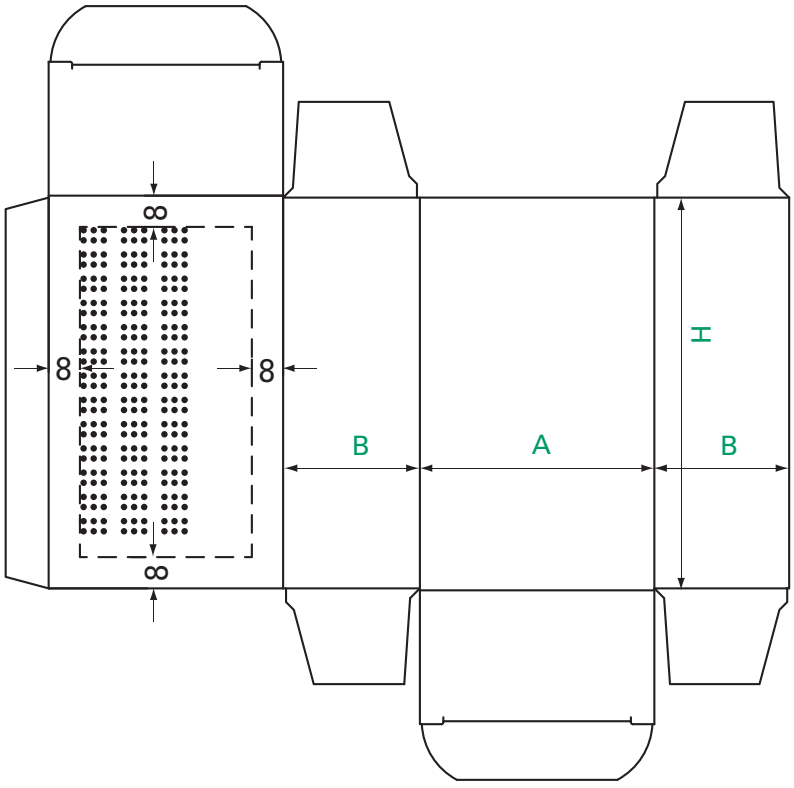
Pattern for the standard position of the braille on panel A1 of the folding carton

Amount of text

The number of available characters and lines for braille text embossing are determined by the dimensions of the folding carton.

Number of braille lines on a main panel of the folding carton			
1	2	3	4
22.6	32.6	42.6	52.6
Dimension A/B (minimum) of the folding carton in mm			

Number of braille characters per braille line														
6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
50.1	56.1	62.1	68.1	74.1	80.1	86.1	92.1	98.1	104.1	110.1	116.1	122.1	128.1	134.1
Dimension H (minimum) of the folding carton in mm														



6 Prepress and Quality Assurance

Implementation of braille into artwork files and print approvals

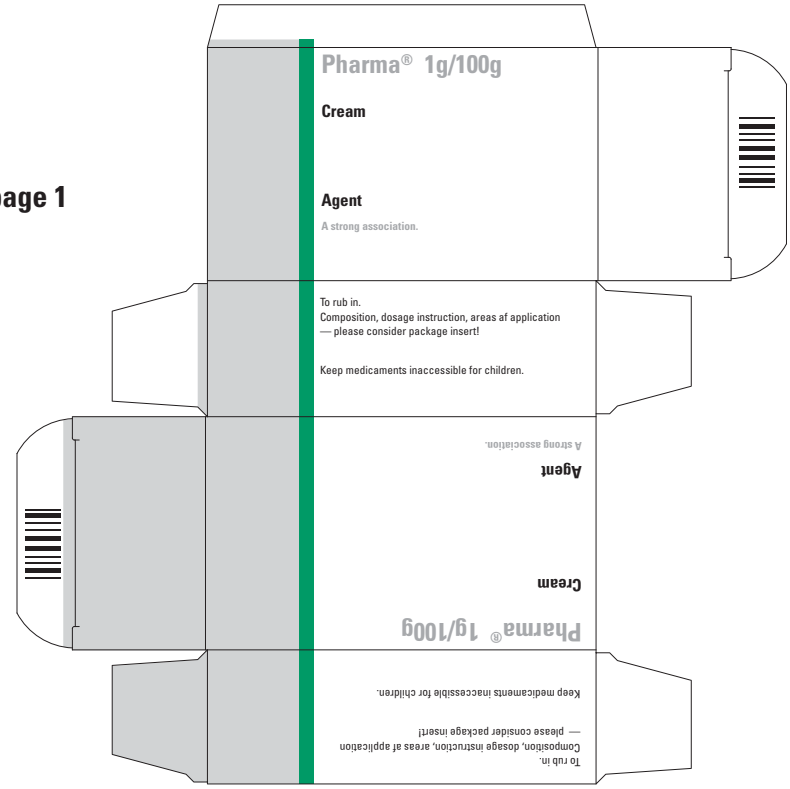
Braille text must be laid down as an additional layer in the artwork file. The color used to represent the braille text must not be used in any other place in the document. The braille in the artwork file, in the print approval file, in the cutting and creasing tool and in the finished folding carton must match exactly. The braille message must also be reproduced in regular type outside the line of the embossing die. Braille text and dots must be clearly legible in documents supplied to the folding carton producer by the customer.

Once artwork files have been supplied, the braille dots in them are fixed and cannot be changed. The digital die-line, the embedded universal matrix and the printing files must be approved by the customer, artwork agency and the folding carton producer. The universal female matrix for the artwork creation has to be requested from the folding carton producer.

In order to ensure that the braille text can be checked at all stages of production, approved proofs for folding cartons carrying braille must be set up as follows:

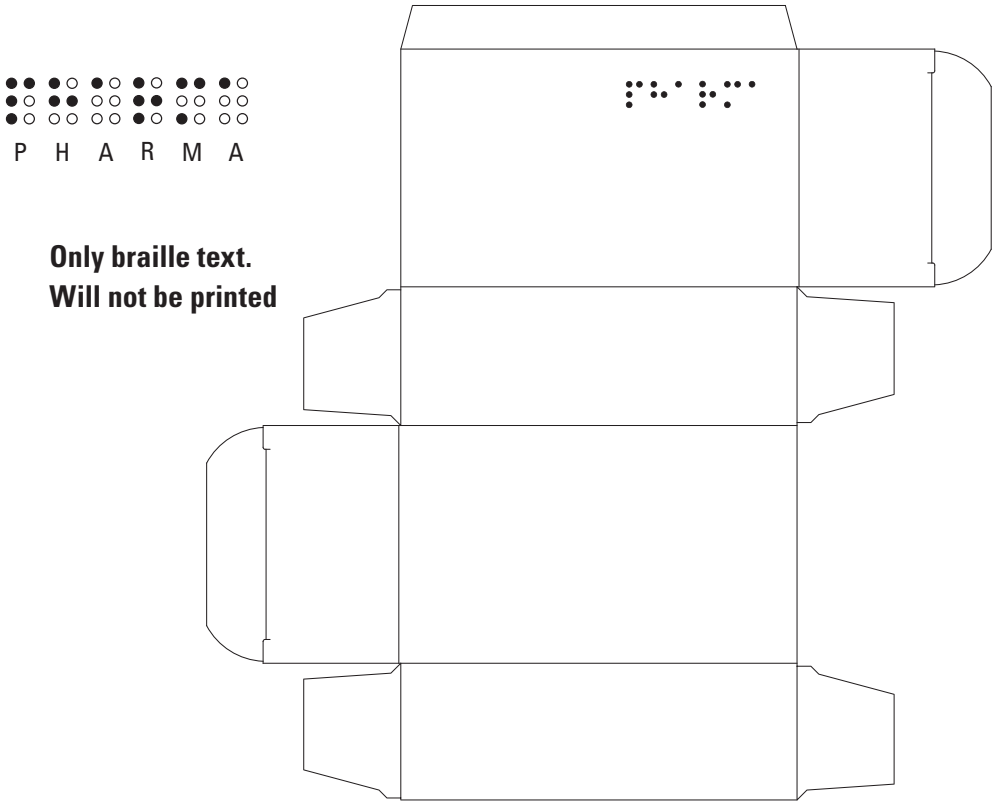
The first proof page must contain only the printed image, and should be used for approving regular print.

Print approval page 1



The second proof page must contain only the braille dots together with the die-line and the braille message in alphanumeric text, (outside the die-line).

Braille approval page 2

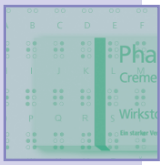


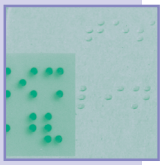
Quality assurance

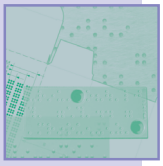
- In all documents provided by the customer to the folding carton producer, the braille content must be clearly legible.
- The artwork files as approved by the customer are the basis of the proofing process.
- All embossed braille print must be verified continuously during production by using control films or other agreed means.

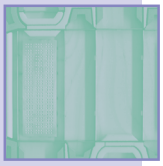
A quality assurance agreement between the customer and folding carton producer is necessary to ensure that the highest possible standards are guaranteed for the braille reader.

7 Conclusion









Standardization reduces costs and brings security

Optimizing the process requires the establishment of clear criteria and guidelines for:

- standardization of fonts
- standardization of positioning
- standardization of folding carton formats
- agreed standards for the profile of the braille dots
- integrated testing and control systems

When delivery schedules and cost aspects are taken into consideration, it is vitally important to have secure and efficient production processes.

Compliance with the braille legislation and best practice can only be achieved economically and effectively by exchanging information.

Cooperation between all parties involved is crucial for success.

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These guidelines and recommendations should not be considered a replacement for specialist consultancy services, and no claim is made that they are comprehensive. No warranty, explicit or implicit, is given for the information contained in this booklet, and users should independently determine its suitability for their particular applications.

Use of the standard is recommended by both IADD and BANA in the interest of the industry as a whole. IADD and/or BANA in no way obliges companies to implement the standard in their individual commercial practice. The standard is largely based on the EU legislation and related guidelines.

This standard will be actively promoted throughout the paperboard, graphic arts and folding carton industries. The publishers welcome readers' comments, as well as suggestions for future updates and revisions.

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Member organizations of BANA:
American Council of the Blind
American Foundation for the Blind
American Printing House for the Blind
Associated Services for the Blind and Visually Impaired
Association for Education and Rehabilitation of the Blind and Visually Impaired
Braille Institute of America
California Transcribers and Educators of the Visually Handicapped
The Clovernook Center for the Blind and Visually Impaired
CNIB (Canadian National Institute for the Blind)
National Braille Association
National Braille Press
National Federation of the Blind
National Library Services for the Blind and Physically Handicapped
Royal New Zealand Foundation of the Blind (Associate Member)

ECMA, the European Carton Makers Association
Email: mail@ecma.org
URL www.ecma.org

National carton associations affiliated with ECMA:

Austria:	Verband der Faltschachtelindustrie (www.ppv.at)
Belgium:	ECMABEL (www.fetra.be)
Denmark :	Emballage Industrien (www.emballageindustrien.dk)
France:	Fédération Française du Cartonnage (www.federation-cartonnage.org)
Germany:	Fachverband Faltschachtel-Industrie (www.ffi.de)
Italy:	Assografici GIFASP (www.assografici.it)
Netherlands:	ECMA Nederland (www.kartoflex.nl)
Spain:	Aspack (www.aspack.es)
Sweden	Svenska Kartongförpackningsföreningen (www.kartong.info)
Switzerland:	Vereinigung Karton-Verpackung Schweiz (www.druckindustrie.ch)
	Swisscarton (www.swisscarton.ch)
Turkey:	KASAD (www.kasad.org)
United Kingdom:	BPIF Cartons (www.bpif.org.uk)

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