

# Sony DADC



## **DVD MANUAL**

V 99 E



# Table of Contents

---

Introduction .....	1
<b>1. From CD to DVD .....</b>	<b>2</b>
1.1. Format and Specifications .....	2
1.2. DVD Types and Formats .....	3
1.3. Services .....	5
<b>2. DVD-Video .....</b>	<b>6</b>
2.1. General .....	6
2.2. DVD-Video input media .....	6
<b>3. DVD-ROM .....</b>	<b>7</b>
3.1. Data preparation .....	7
3.2. Formatting .....	7
3.3. Input media .....	7
<b>4. Label Printing .....</b>	<b>9</b>
4.1. Printing Processes .....	9
4.2. Printing Areas .....	9
4.3. Label Film Dimensions .....	9
4.4. Film Specifications for Label Print .....	14
4.5. Standard Contents .....	16
4.6. Colours .....	17
4.7. Label Film Data via Electronic Storage Media .....	17
4.8. Label Film Data via Electronic Data Transfer .....	18
4.9. Production of the Label Film .....	19
<b>5. Disc Serialisation .....</b>	<b>20</b>
<b>6. Packaging .....</b>	<b>21</b>
6.1. Printing Process .....	21
6.2. Film Specifications for Production of Printwork and Stickers .....	21
6.3. Specifications for Printwork and Stickers .....	31
6.4. Packaging of Supplied Printwork .....	42
<b>7. Sony DADC The Company .....</b>	<b>45</b>

*The objective of this manual is to facilitate the correct preparation of input components for DVD productions with Sony DADC. Similar manuals are available for our other products including CD-Audio, CD-ROM, MiniDisc and PlayStation Disc. These manuals can also be downloaded from our website at <http://www.sonydadc.com>.*

*Compliance with the specifications in this manual will avoid confusion and reduce the requirements for modifications. Rework may considerably extend the production, thus making it more expensive. Therefore, we advise you to provide these specifications to the staff in charge with the preparation work, in particular external video, sound, graphics and other premastering studios.*

*As the final product will depend on the quality of the input components supplied, the adherence to the manual specifications represents an essential contribution to the total quality of the product and service that we provide to you as a customer.*

*In general, all Sony DADC prices and schedules are valid based on the assumption that the input components provided by the customer meet the manual specifications. When components do not meet the outlined specifications, these are either returned or improved based on the customer's request. Additional expenses and charges apply. Prices for DVDs and special Services (e.g. carrier, editing, film exposure, film generation etc.) are provided in our current price list.*



## 1. From CD to DVD

DVD, which stands for Digital Versatile Disc, is the next generation of optical disc storage technology. It is essentially an optical disc that can hold video as well as audio and computer data. This new optical disc can reach a capacity of up to 26 times the capacity of a CD-ROM and encompasses pre-recorded read only discs like DVD-Video, DVD-ROM, DVD-Audio, SACD and recordable formats like DVD-R, DVD-RAM, DVD+RW and DVD-RW. For movie applications, a DVD can store full length movies in a high-quality digital video with surround sound in several languages and a wide range of interactivity as well as subtitles. Almost all DVD players and DVD-ROM drives are equipped with an additional laser diode or a special lens for playback capability of existing Audio CDs and CD-ROMs.

### 1.1. Format and Specifications

The DVD standard defines a disc that maintains the overall dimensions of the current Compact Disc. Therefore the backwards compatibility with existing Audio CDs and CD-ROMs was easier to realise. The table below demonstrates similarities and differences of CD and DVD.

	CD	DVD
Disc diameter	120mm	120mm
Disc thickness	1.2mm	1.2mm
Disc structure	single substrate	two bonded 0.6mm substrates
Laser wavelength	780nm	650 / 635nm
Numerical aperture	0.5	0.6
Track pitch	1.µm	0.74µm
Shortest pit/land length	0.83µm	0.4µm
Data layers	1	up to 4
Data capacity	approx. 650 MB	4.7 GB - 17.1 GB

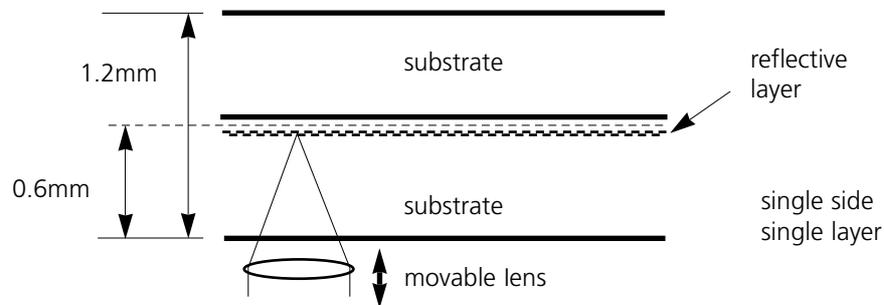
## 1.2. DVD Types and Formats

A DVD consists of two halves, where each half disc is 0.6 mm thick holding one or two layers of information.

The DVD format provides multiple configurations of data layers. Each layer provides additional data capacity.

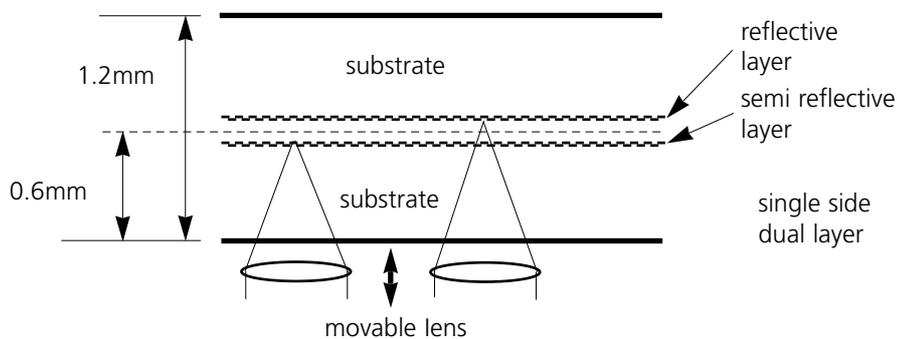
Disc Type		Capacity 12 cm
DVD-5	single sided, single layer	4.7 GB
DVD-9	single sided, dual layer	8.5 GB
DVD-10	double sided, single layer	9.4 GB
DVD-18	double sided, dual layer	17.1 GB

### DVD-5



The total capacity of a single side, single layer DVD is 4.7 GB, which is 7 times the data capacity of today's CD-ROMs.

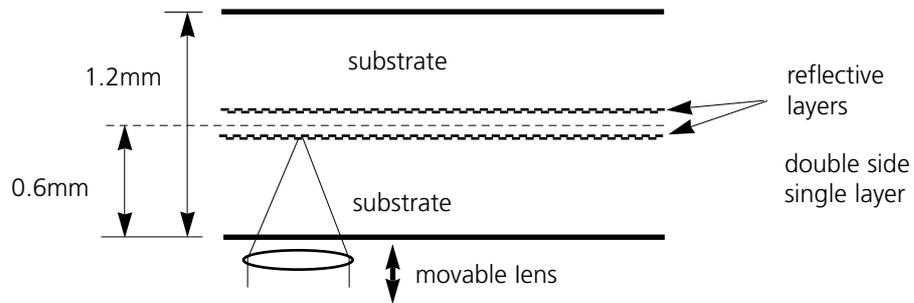
### DVD-9



The total capacity of a single side, dual layer DVD is 8.5 GB, which is 13 times the data capacity of today's CD-ROMs.



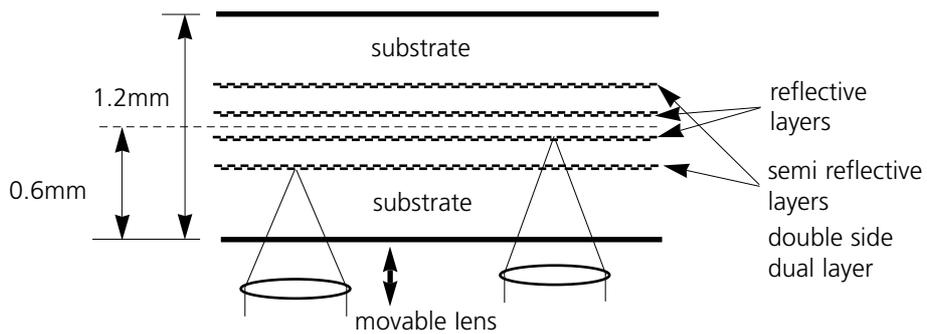
## DVD-10



The total capacity of a double side, single layer DVD is 9.4 GB, which is 14 times the data capacity of today's CD-ROMs.

Note: disc has to be reversed to playback upper side.

## DVD-18



The total capacity of a double side, dual layer DVD is 17.1 GB, which is 26 times the data capacity of today's CD-ROMs.

Note: disc has to be reversed to playback upper side.

Availability of DVD-18 is to be confirmed by Sony DADC.

## 1.3. Services

Statistical process controls and in-line inspection systems form a key part of our production process. Full 100% checks by means of automatic test systems of label print and read-out sides are implemented with the strictest error criteria.

A team of highly qualified staff as well as auxiliary means such as optoelectronic test devices, an electron microscope with X-ray spectroscopy, an atomic force microscope and climatic chambers are available for permanent process control and improvement, for systematic error analyses as well as for maintaining the durability of our products.

The processes and procedures are certified according to ISO-9002. This is an essential reason for the fact that Sony DADC has qualified, after successfully proving a 6-sigma quality, for 'Ship to Stock' Status to some of the largest international computer manufacturers.

We will be pleased to assist you in the solution of your technical problems. If you are interested in an electronic link for transmitting your master data and other components to Sony DADC, we can offer our know-how and our experience and will reserve storage capacity for your data on our servers. If you need further services, please inform our Customer Service department so that we can assist you in the realisation of your project.

### Our services comprise the following:

- Personal assistance by a member of our Customer Service staff
- Authoring of DVD Video / Audio
- Premastering / formatting of DVD-ROM ( microUDF / ISO9660 Bridge format )
- Premastering / formatting of all common DVD / CD formats
- On-line data transfer via 2Mbit ISDN
- Disc prototyping on CD-R / DVD-R
- Mastering of all DVD & CD formats
- DVD 5 / 9 / 10 disc production in short turnaround times
- Screen and offset label printing on discs
- Support in artwork creation
- Disc serialisation
- Packaging / dispatching
- Drop shipment



## 2. DVD-Video

### 2.1. General

DVD-Video is a new media for the distribution of home videos. The digital nature of this new media offers several new features to the consumer.

Amongst those features are:

- High video quality based on MPEG2 compression and the ability to playback both aspect ratios of 4:3 and 16:9.
- A DVD-Video can hold up to 8 different audio tracks (streams). Each track can be used for a different language. It can also be utilised for high quality stereo audio with a resolution of 16 bit and 48 kHz, or for theatre quality surround audio, like Dolby Digital AC-3.
- Up to 32 different streams of subtitles can be placed on a DVD-Video, used as language subtitles, as menu highlights or as instructions for interactive functions.
- Digital copy protection via CSS and analogue copy protection via Macrovision.

- Multibranching is another feature of DVD-Video that simply offers the possibility to playback one title with different parts of this title, which can be interactively selected by the viewer. In addition the multiangle option allows a scene of a movie title to be viewed in different angles.
- Every DVD-Video player implies a region code corresponding to one of the six regions in the world where it is sold. This regional coding optionally enables playback of a DVD-Video title only in certain regions.
- DVD-Video discs can be prepared with a 'Parental Lock' in order to restrict the playback only by usage of a correct password.

### 2.2. Input media for DVD-Video

Sony DADC offers full authoring service for DVD-Video. For detailed information please refer to our DVD-Video authoring manual or contact our Customer Service department.

We also accept already authored DVD-Video titles. As standard input media Sony DADC prefers a DLT tape including DDP 2.0

## 3. DVD-ROM

### 3.1. Data preparation

The first step in formatting is the collection and preparation of the input materials. You can submit already formatted data as an image on tape or leave the formatting of your data to us. Unformatted data on storage media as well as backup formats on tape or unformatted data transmitted via ISDN first have to be converted into a DVD-ROM compatible format. Please note that these additional process steps take more time and are more expensive. In order to arrange the data in a desired sequence, please provide a detailed listing of the file and directory structure of the final DVD-ROM.

If you submit a tape, please inform us whether there is a DVD image or a backup format on this tape. According to chapter 3.3. ( image on tape ) we are able to achieve shorter cycle times for your orders and limit premastering costs as long as there is an already formatted DVD image on tape.

When sending hard disks or exchange discs please communicate the number of files and the data quantity. Pack your data carrier carefully to avoid damage during transportation. Moreover, we ask you to mark your input carriers. Please be sure to use adequate fibre pens which do not damage the surface of the disc, particularly with CD-R.

### 3.2. Formatting

Sony DADC formats data according to the UDF-Bridge ( UDF + ISO 9660 ) standard:

#### **UDF-Bridge Format:**

Is a new logical format for volume and file structure on DVD-ROM discs to support the interchange of information between a computer system and dedicated DVD drives or players. UDF-Bridge stands also for a combination between the Universal Disc Format ( ISO/IEC 13346 ) and the ISO 9660 standard.

Through the naming and file structure of UDF the UDF file system is much more powerful than the file structure of ISO 9660.

However, the UDF-Bridge combines both the UDF and ISO 9660 formats, and therefore the file structure has to meet the ISO-9660 designation agreement.

#### **ISO 9660:**

The ISO 9660 (level 1) file structure is limited to the characters 'A - Z', '0 - 9' and. '\_' (underscore) with a maximum of 8 characters in length and 3 characters extension and a maximum of 8 directory levels (including the root directory)

To avoid the restrictions of ISO 9660 level 1 and to use longer file names Level 2/3 can also be used. These levels restrict filenames to 30 characters and directory names to 31 characters.

#### **Joliet extension:**

To meet the demand for Windows 95 file names there was a extension designed called Joliet format. This file system allows longer file and directory names than ISO 9660 level 1 as well as level 2/3, where file or directory Identifiers may be up to 64 characters.

### 3.3. Input media

#### **DVD-ROM images on tape**

Sony DADC will accept ANSI labelled DVD-ROM images either on DLT or SDX tape. We strongly recommend that any tape compression is turned off. The DVD Data Sector size can be 2048, 2054 or 2064 Bytes/Sector.

The DDP ( level 2.00 ) is either to be placed at the front of the tape followed by the DVD Leadin-data and the DVD Image or on a separate Floppy Disk.

The image is subjected to a logical incoming UDF-check and can be used for direct mastering.



### **DVD-ROM, DVD-R (Recordable), DVD-RAM, DVD+RW, DVD-R/W**

An already replicated DVD-ROM is a preferred input media because it can be used immediately for direct mastering.

In order to determine the input media, please mark your input carriers with a catalogue number.

### **CD-R (Recordable), CD-ROM**

If you wish to put the data of a series of CD-ROM's on one single DVD-ROM or if you wish to transfer data from a CD-ROM to a DVD-ROM we have to generate a new DVD-ROM image.

In order to arrange the data in a desired sequence, please provide a detailed listing of the file and directory structure of the final DVD-ROM.

### **Electronic data transmission via ISDN**

For shortest transport times of components to Sony DADC, we offer a data link via an ISDN primary rate interface directly to our servers. This data offers a range up to 2 Mbit / second.

The data of a 650 Mbyte CD-ROM are then copied in approx. 47 minutes to our servers. With previous compression of your data the transmission is still reduced further.

After receiving a compressed image we automatically carry out a decompression and a checksum control. The production of a glass master is then carried out on-line. Upon request the system transmits a short e-mail to the sender and acknowledges errorfree transmission.

If you are interested in this kind of transmission for your DVD-ROM data and order components please get in touch with us. We will be pleased to assist you in establishing an electronic connection with us.

### **Apple Macintosh / DOS SCSI hard disk**

Please only send us SCSI hard disks with a description of the file and directory structure of the final DVD-ROM.



### 4. LABEL PRINTING

*The following pages contain important specifications on the DVD printing and the film material required.*

***Please transmit this information to your graphics artist or designer.***

#### 4.1. Printing Processes

Sony DADC uses screen printing processes for printing DVDs as well as offset printing processes.

**The following types of print can be processed:**

- line prints with up to 4 colours (3 colours for DVD-10)
- half-tone prints
- duplex and triplex prints
- Four-colour prints  
(picture disc: offset/screen printing)

For particular requirements with respect to printing quality in four-colour print, we offer the High Definition Picture Disc. This is to be recommended particularly with applications including photographs, faces, landscapes or designs which are similar to photographs.

A specific offset process is used which facilitates a resolution that is about double that of the screen print.

#### 4.2. Printing Areas

On the following pages the three possible printing areas on a DVD label are illustrated (specifications F, G and H).

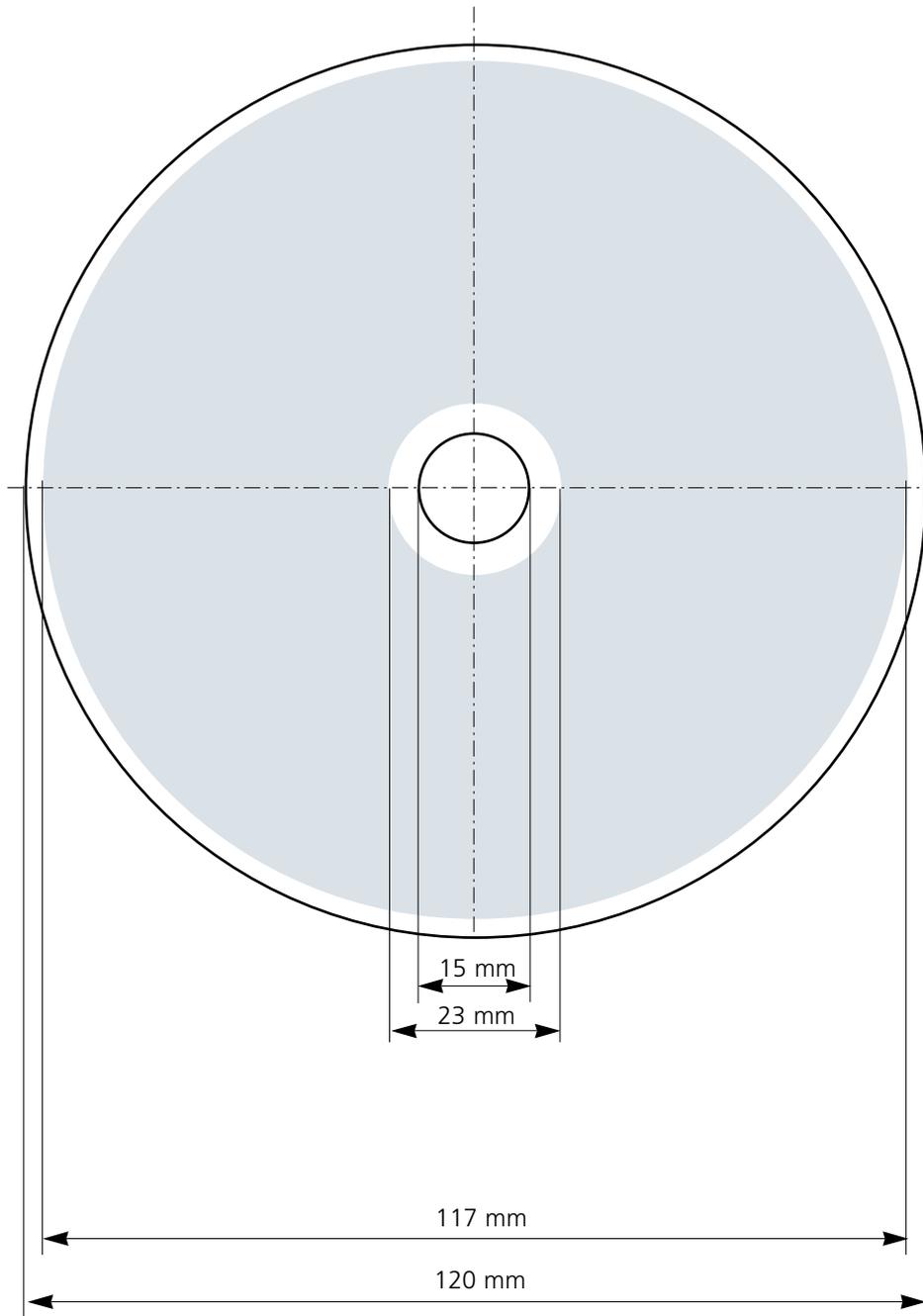
Please mind that there may be colour deviations between the print on the aluminium coated part and the non-aluminium coated interior parts. Therefore, we advise to preprint an entire white base to minimise colour deviations with specifications F, G, H.

#### 4.3. Label Film Dimensions

Please ensure that your label films comply with the required specifications F to H (see page 10 to 13). Any necessary label film corrections are charged according to our price list.

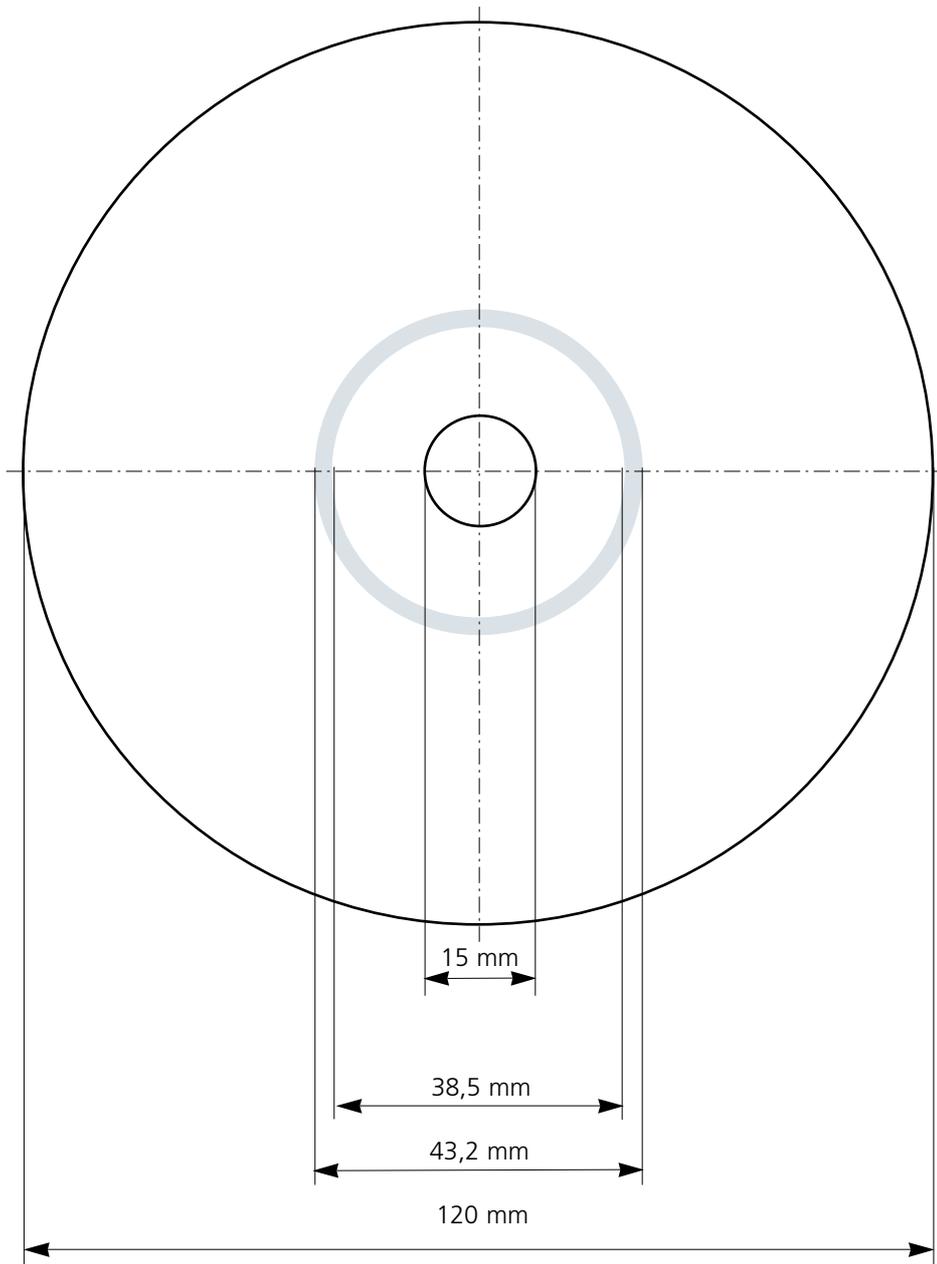
# Specification F - Label Print

DVD 5 / DVD 9



 Printing area on the DVD

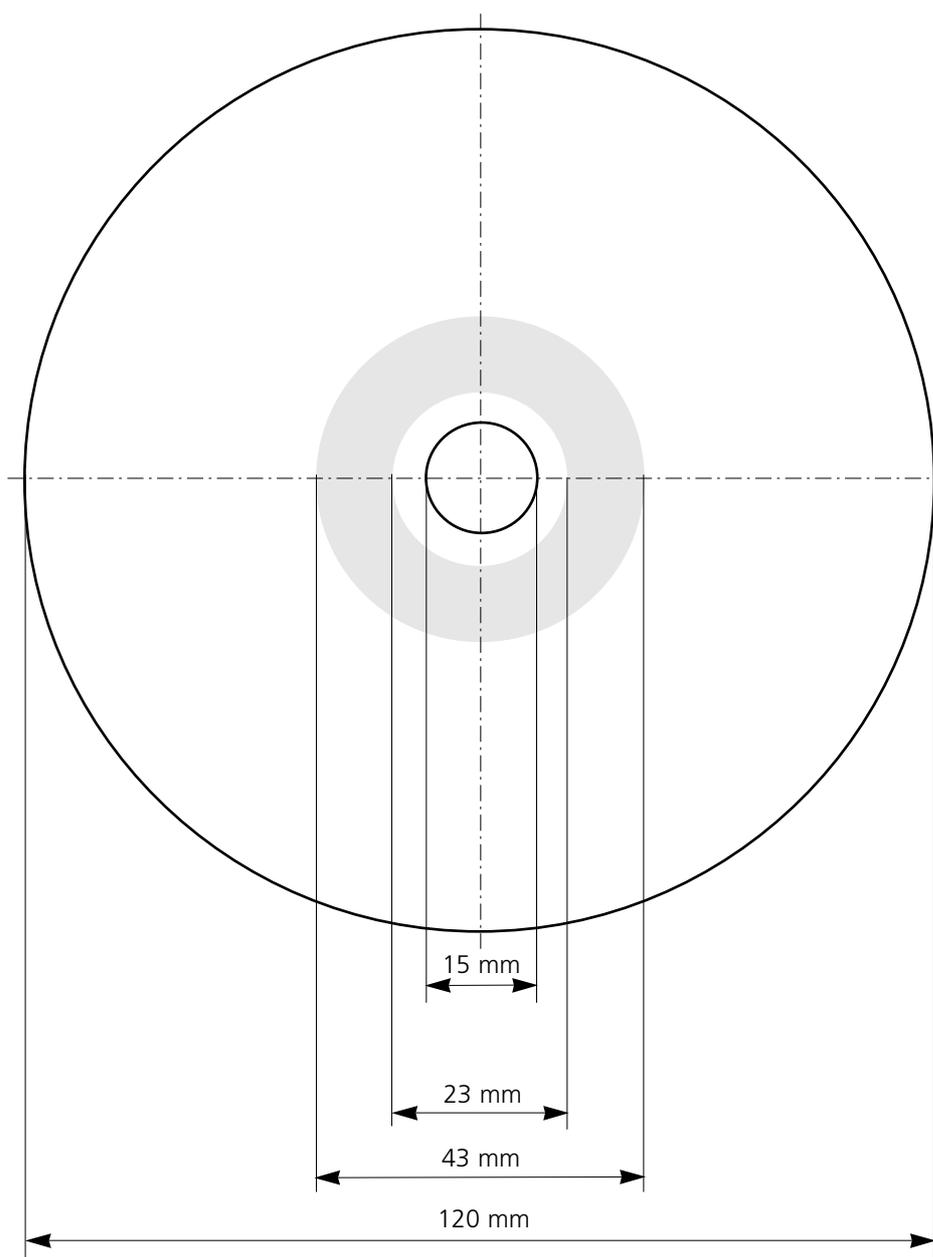
# Specification G - Label Print DVD 10 Side A and B



 Printing area on the DVD

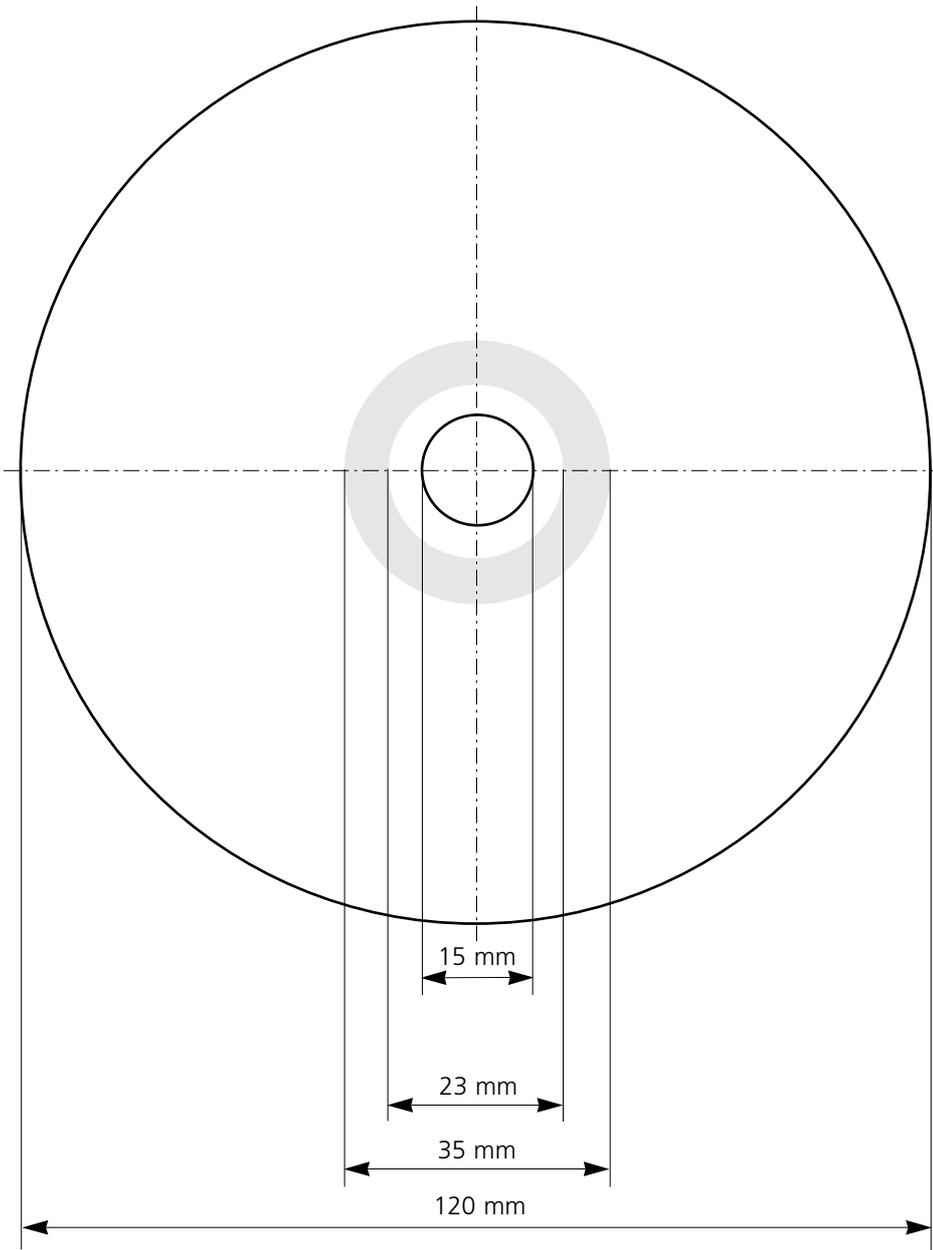
## Specification H - Label Print DVD 10 Labelside A

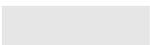
Alternatively Sony DADC offers an extended printing area for DVD 10. Please note that Labelsides A and Labelsides B of specification H hold different printing areas. This is required in order to machine-read the barcode of the product.



 Printing area on the DVD

# Specification H - Label Print    DVD 10    Labelside B



 Printing area on the DVD

# Film Specifications

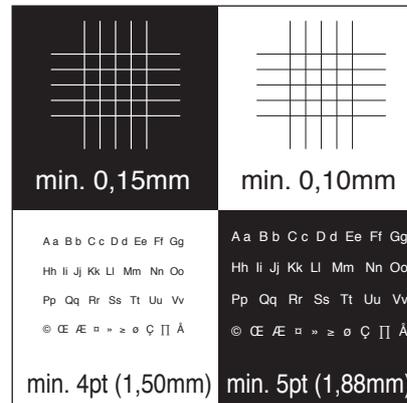
## 4.4. Film Specifications for Label Print

Unless indicated otherwise in one of the special printing processes below, we will need smooth, full-page screen printing films (positive, right side reading, emulsion up).

### Line widths and letter sizes

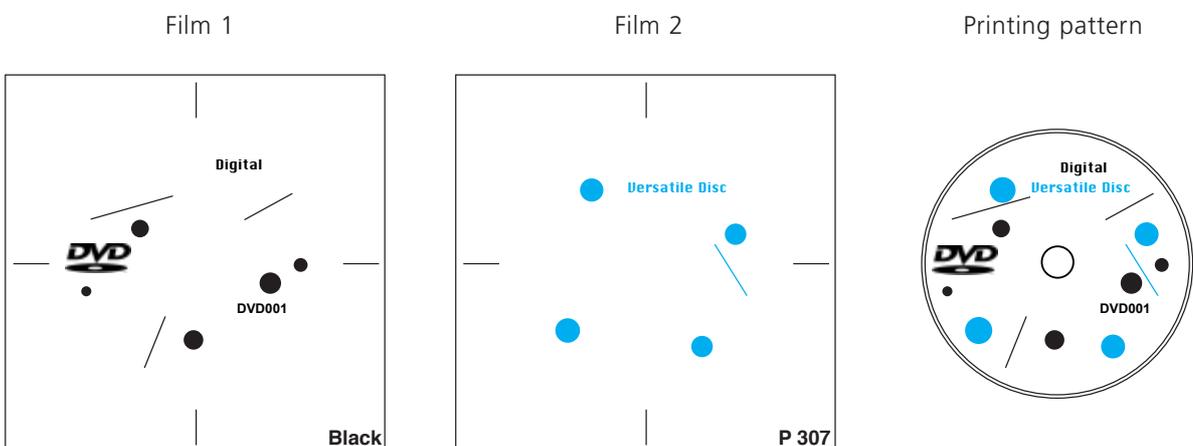
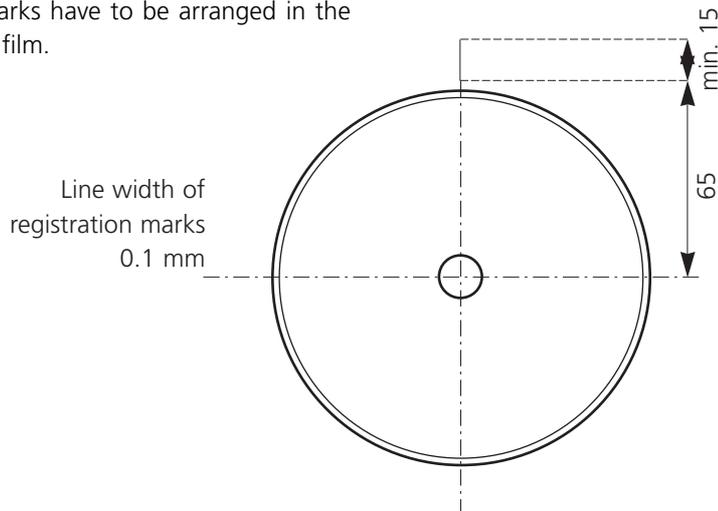
- The line width has to be at least 0.10 mm in positive print.
- The line width has to be at least 0.15 mm in negative print.
- The letter size has to be at least 4 pt. (1.50mm) in positive print.
- The letter size has to be at least 5 pt. (1.88mm) in negative print.

Please mind that with serif type fonts (e.g. Times) and with type faces such as "light" with letter sizes of 4 and/or 5 pt. the minimum line width of 0.10 and 0.15 mm is not achieved and thus an adequately larger letter size has to be selected.



### Registration marks for screen printing

The registration marks have to be arranged in the centre to the label film.





### Density

To be able to process your label films optimally the minimum film density has to be 3.0 in full tone.

### Duplex/triplex print (half-tone print) with Pantone colours

We will need smooth, full-page screen printing films (positive, right side reading, emulsion up) from you prepared as follows:

- Line width 34 l/cm
- Angle code 45°
- Max. density 15 - 85 %
- Elliptic dot shape

For duplex and triplex prints please use the following angle codes: 0°, 15°, 45° or 75°. With other angle codes a 'moiré-free print' is not provided.

### Four-colour print - Picture Disc

We will need smooth, full-page screen printing films (positive, right side reading, emulsion up) from you prepared as follows:

- Line width 54 l/cm
- Angle codes:
  - cyan 75°
  - magenta 45°
  - yellow 0°
  - black 15°or angle codes similar to the Hell and Crossfield system.
- Density 15 - 85 %
- Elliptic dot shape

To achieve favourable printing results we need a compulsory colour copy such as Cromalin, Matchprint, Pressmatch or test print.

Please take into account that there may be colour deviations from the original copies due to the different consistency of the base.

### Four-colour print - High Definition Picture Disc

We will need smooth, full-page screen printing films (positive, right side reading, emulsion down) from you prepared as follows:

- Line width 80 l/cm
- Angle codes:
  - cyan 75°
  - magenta 45°
  - yellow 0°
  - black 15°or angle codes similar to the Hell and Crossfield system.
- Registration marks to be centered only as shown in diagram page 18/chapter 4.5.

To achieve favourable printing results we need a compulsory colour copy such as Cromalin, Matchprint, Pressmatch or test print.

Please bear in mind that the base of the DVD consists of polycarbonate with reflecting aluminium coating and therefore there may be colour differences compared to the printwork (paper/carton).

To provide (as much as possible) conformity of colours of printed matter (printwork) and the DVD label print, we advise to preprint a full white base on the DVD.

For Picture and/or High Definition Picture Disc printing Sony DADC can prepare four-colour separation/litho production of the label films for you. For materials required please refer to chapter 4.9. on page 19.



## 4.5. Standard Contents

### Catalogue number:

A catalogue number has to be printed on the DVD.

### DVD Logo

A DVD logo also has to be shown on each DVD-ROM and DVD-Video in accordance with the DVD specification. The DVD logo should be seen clearly on the disc. Therefore, it has to be shown in highest possible contrast, but in any case the contrast between the logo and the background colour must not be less than 50 %.

### “Made in EU”

A designation of origin is not necessary on the DVD. However, if such designation is requested, it has to be “Made in EU”.

### Company address, label address

To protect your product against piracy and to clearly state the holder of the rights, we ask you to indicate the company name and address on the label film or on the printwork.

The generic DVD logo in accordance with the DVD specification:



Contrast between DVD logo and background not admissible



Contrast between DVD logo and background admissible

DVD-ROM logo



DVD-Video logo



*Deviations from the standardised DVD logo are not permitted. The DVD logo must not be distorted, squeezed, decomposed, framed or composed of parts with different colours.*



### 4.6. Colours

Sony DADC uses the Pantone Matching System (PMS).

Please mark each label film with the Pantone colour number requested by you. Please select your colour from the Pantone Colour Selector 1000, except for double impression (2x) colours.

When using Pantone colours 801 to 814, preprinting should be carried out with white colour in order to achieve the luminescent effect similar to the Pantone Colour Selector 1000.

When producing your films please mind that a base of polycarbonate with reflecting aluminium coating is printed and therefore there may be colour deviations compared to printing on paper.

To provide (as much as possible) a compliance of the colours of printwork (e.g. booklets) with the DVD label printing, we advise to preprint a full white base on the DVD.

### 4.7. Label Film Data on Electronic Storage Media

Sony DADC employs a Graphics Studio with the following standard DTP (Desktop Publishing) equipment:

#### HARDWARE

- Apple MAC G3
- Laser imager AGFA AccuSet 1000 with Software Taipan RIP (resolutions up to 2400 dpi)
- Laser imager AGFA Avantra 25 with Software Taipan RIP (resolutions up to 3600 dpi)
- 3M Desktop Colour Proofing System
- Drum scanner "Chromagraph S3300" (resolution up to 14000 dpi)

#### SOFTWARE

- | recommended software | accepted software  |
|----------------------|--------------------|
| ● Quark X-Press      | ● Aldus Pagemaker  |
| ● Aldus Freehand     | ● Corel Draw (DOS) |
| ● Adobe Illustrator  |                    |
| ● Adobe Photoshop    |                    |

#### Apple Macintosh Data

If your label films are produced on an Apple Macintosh system you may transmit your designs to

us on electronic storage media for film burn-out.

#### DOS Data (Corel Draw)

If you have edited your designs under DOS, please send us a placeable EPS file in which the text is converted into curves and the image identification set is switched on.

If you have used Corel Draw please send us the CDR file.

#### Other hardware and software

If you operate another software or hardware format please contact our Graphics Studio (tel. +43/62 46/880-448)

#### The following storage media can be accepted:

- ZIP disk, JAZ disk and CD-R
- 3.5" floppy disk in Mac or DOS format
- 44/88/200 MB cartridge (5.25") in Mac format
- 270 MB cartridge (3.5") in Mac format
- MO disk 230 MB (3.5") in Mac format

#### **Please do not forget:**

- Laser printout: Attach a print-out of a laser printer to your documents.
- Fonts: Indicate manufacturer and all display settings, if necessary enclose screen and printer fonts.
- TIFF and EPS files: All graphic files (logos, company logos etc.) have to be supplied in all cases.
- Changes: Beware of the major resolution of the laser imager with fine lines, outlines and half tones. In general these become thinner.
- Marking: Your floppy or cartridge should be marked to provide clear identification.
- Liability: We do not assume liability for incomplete or defective files. Only submit copies you have checked and stored carefully.

#### DTP-labelfilm template DISC

All labelfilm templates can be downloaded as QuarkXpress file from our website:

<http://www.sonydadc.com>. Upon request we will provide a 3.5" disk with all DVD logos and the copies of all label film specifications and printwork specifications used by us as Tiff or EPS and/or QuarkXPress files, respectively. Please contact our Customer Service department in this respect.



## 4.8. Label Film Data via Electronic Data Transfer

You also have the possibility to send us your data (label film and printwork) via ISDN or Internet for exposure. If you want to transmit data in such a way we ask you to inform Customer Service.

### ISDN DATA TRANSFER

Please note the following:

#### Our ISDN numbers are:

4-Sight: **+43/6246/73692**

Leonardo: **+43/6246/73692**

#### Hardware requirements:

All ISDN adapters, preferably the current ISDN boards:

- Leonardo
- Planet
- 4-Sight
- Easy Transfer

#### Software requirements:

- 4-Sight Manager Version 4.3.1 or
- 4-Sight Broadcast
- Leonardo Pro

#### Data preparation:

Our server is ready to receive on workdays 24 hours. Prior to the data transfer please inform our graphic studio (Tel.: ++43/6246/880-448) in order to ensure sufficient storage space. With ISDN a laser print-out is not supplied compared to data delivery on storage media. Therefore such a laser print-out must be faxed to our Graphics Studio (Fax: ++43/6246/880-392).

#### Data compression:

All compression algorithms available for Apple Macintosh (e.g. Stuffit, ".sit", Self Extracting Archives for MAC ".sea", Disk-Doubler, ZIP, etc.) can be used. Files edited under DOS/Windows can be compressed using PkZip or WinZip.

**Data delivery:**  
Place all files (copy, fonts, Tiff/EPS, info file) in a directory and mark it with your name and the date (if necessary, abbreviations such as "Release 11.4.99").

Enclose a text document to the files containing the following data:

- With label films: number of colours used (4C or Pantone).
- With inlay card films: indication of front and rear side.
- With other printwork films: all data required for printing (e.g. 8-page digipack).
- Fonts and Tiff/EPS files used.
- Contact address for technical inquiries (graphics studio tel./fax)
- Name of Customer Contact at Sony DADC
- Order Information associated with the Catalogue Number.

### INTERNET DATA TRANSFER

Data transfer via Internet is only suited for "emergencies" such as sending missing components including fonts, logos, Tiff or EPS files due to the high transmission time of 100 KB per minute.

#### Our Internet address is:

**Graphics\_Studio\_DADC@sonydadc.com**

Please inform our Graphics Studio prior to transmission (Tel.: +43/6246/880-448).

#### Data compression:

All compression algorithms available for Apple Macintosh (e.g. Stuffit, ".sit", Self Extracting Archives for MAC ".sea", Disk-Doubler, ZIP, etc.) can be used. Files edited under DOS/Windows can be compressed using PkZip or WinZip.

**Data delivery:**  
Send us an e-mail with the following information:

- Contact address for technical inquiries (graphic studio tel./fax)
- Name of Customers Contact at Sony DADC
- Order Information associated with the Catalogue Number.



### 4.9. Production of the Label Film

We offer the production of finished printwork and of label film by our Graphics Studio.

To be able to do this we will need a layout or a sketch of your desired design with all information required. After label film production you will receive from us a fax copy for production release or for modifications to be carried out. We are also able to carry out the production of the colour separations required (lithos) for four-colour printing (Picture Disc or High Definition Picture Disc). Please contact our Customer Service department in regards of film production prices.

***To be able to do this we will need the following:***

- Slides, photos, drawings
- Layout (for positioning of texts, logos, graphics, etc.)
- Colour information (in cyan%, magenta%, yellow% and black%)
- Indication of print specifications (specification F, G or H)
- Indication of printing process (screen printing or offset printing)

Please note that 2 to 3 days are needed for the production of label films.



## 5. DISC SERIALISATION

Sony DADC Austria offers the possibility to apply an individual code number for every disc of the DVD-ROM production, e.g. for identification purposes. Your preselected code number is printed on the disc with the ink-jet process.

The code number is printed approximately 5 mm from the centre hole of a disc in arc form. The number will be printed on the read-out side and can only be seen from the read-out side. (see drawing below)

Please note that this service may result in slightly longer turn around time of your DVD-ROM order.

The most important data of an ink-jet printer are indicated for disc numbering:

- Print image: 6 x 9 dot matrix, 3 mm high, 5 characters per 10 mm.
- The series or code number may consist of a maximum of 28 characters using numbers, letters and symbols. Of the maximum 28 characters 9 characters can be changed automatically (e.g. increasing order of numbers).
- Admissible characters of the series or code number are: letters "a-z", "A-Z", numbers "0-9" and symbols (selected characters of the ISO 8859-1 set of characters) in case you want to use symbols please get in touch with our Customer Service.

- It is not possible to underline characters (e.g. 123456).
- A series or code number that changes can only be printed once on the same disc.
- Due to limitation of space on the disc surface the series or code number can be applied in one line only.
- The selected numbers of a series or code number can be increased or reduced by any constant value. Other characters such as letters or symbols remain unchanged.
- A maximum of 9 characters can be increased or reduced.

Example:

BCDE123456789

ABC-123456789gh0m

123456789abcdef

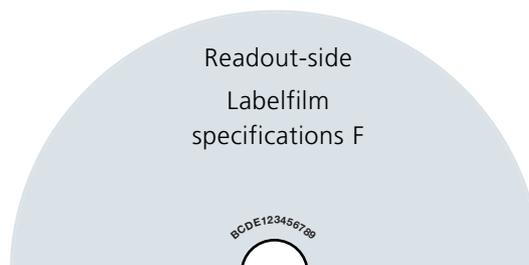
00000-123456789-0000000

The numbers 123456789 are the characters that can be changed.

- It is not possible to write in "bold" or "italics".

Special requests (e.g. printing random numbers which can be supplied on a DOS compatible 3.5" floppy disk) should be addressed directly to our Customer Service department.

Example



## 6. PACKAGING

As part of our full service philosophy, we can provide printwork and any special packaging procurement for you. Due to high yearly volumes we order with our qualified printwork suppliers, we can offer competitive prices. If you wish to utilise this service we request that your graphic studio provides components according to chapter 6.2., with chapter 6.3. being valid for the printwork carried out by us.

Sony DADC can also process text inserts and similar printwork provided by you. In such cases please ensure that these comply with chapters 6.3. to 6.5.

### 6.1. Printing Process

Generally, the printwork is manufactured by qualified printers in four-colour offset print and the use of additional special colours and varnishing is possible.

### 6.2. Film Specifications for the Production of Printwork and Stickers

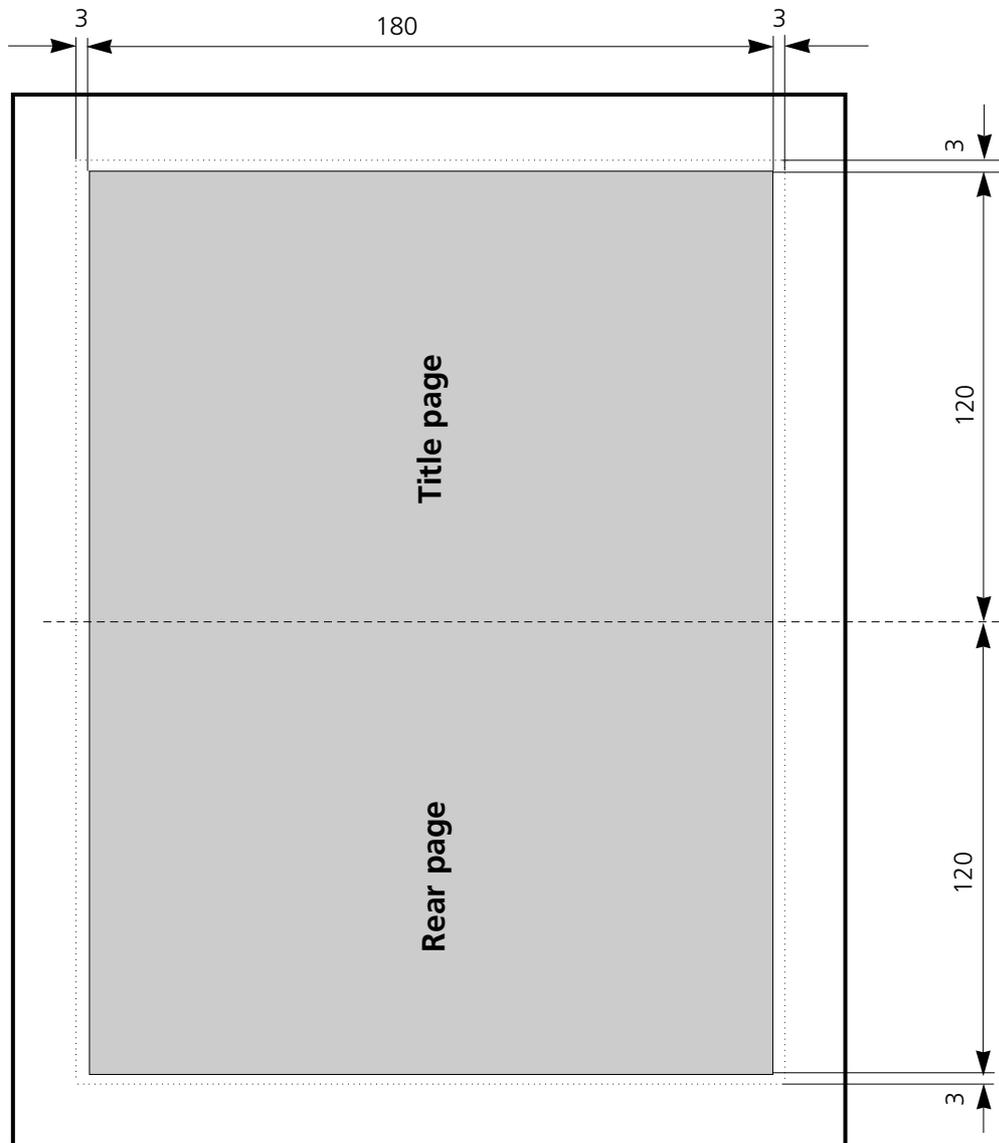
- Send only smooth offset films (positive, right reading, emulsion side down)
- **Optimum screening for printwork films: 70 l/cm**
- **All printwork must have a catalogue number.**
- Page number on all films.
- Please do not indicate origin details except for "Made in EU". Other data with regard to origin are not admissible and will be removed.
- Please mark each film with the respective colour.

- Please arrange films in such a way that the booklet is closed at the left. With special products such as leporello, posters, etc. please enclose a folding sample.
- Films must have a bleed of 3 mm. The cutting marks are arranged outside of the bleed.
- To avoid mismatches, please supply a compulsory match print with all films. However, please note that there may still be slight colour deviations between proof and printwork.
- The films should not be damaged and must be packed in a roll container or carton to prevent folding.
- If you request a colour match between printwork and DVD label print, special colours have to be specified in the same colour system.
- To protect your product against piracy and to clearly identify the holder of the rights, we ask you to indicate the name and address of the music company on the label film or on the printwork.
- When producing your films please mind that colour differences between the printwork and the DVDs may occur, since with the latter a base of polycarbonate with reflecting aluminium coating is printed on and therefore colour differences compared to printing on paper may result.
- To provide (as much as possible) a compliance of the colours of printwork (e.g. booklet) with the DVD label print, we advise to preprint a full white base on the DVD.

***Non-compliance with the specifications and any additional expenses caused shall be charged separately.***



Film Specifications: Booklet for Amaray Box (king size)



All dimensions in mm

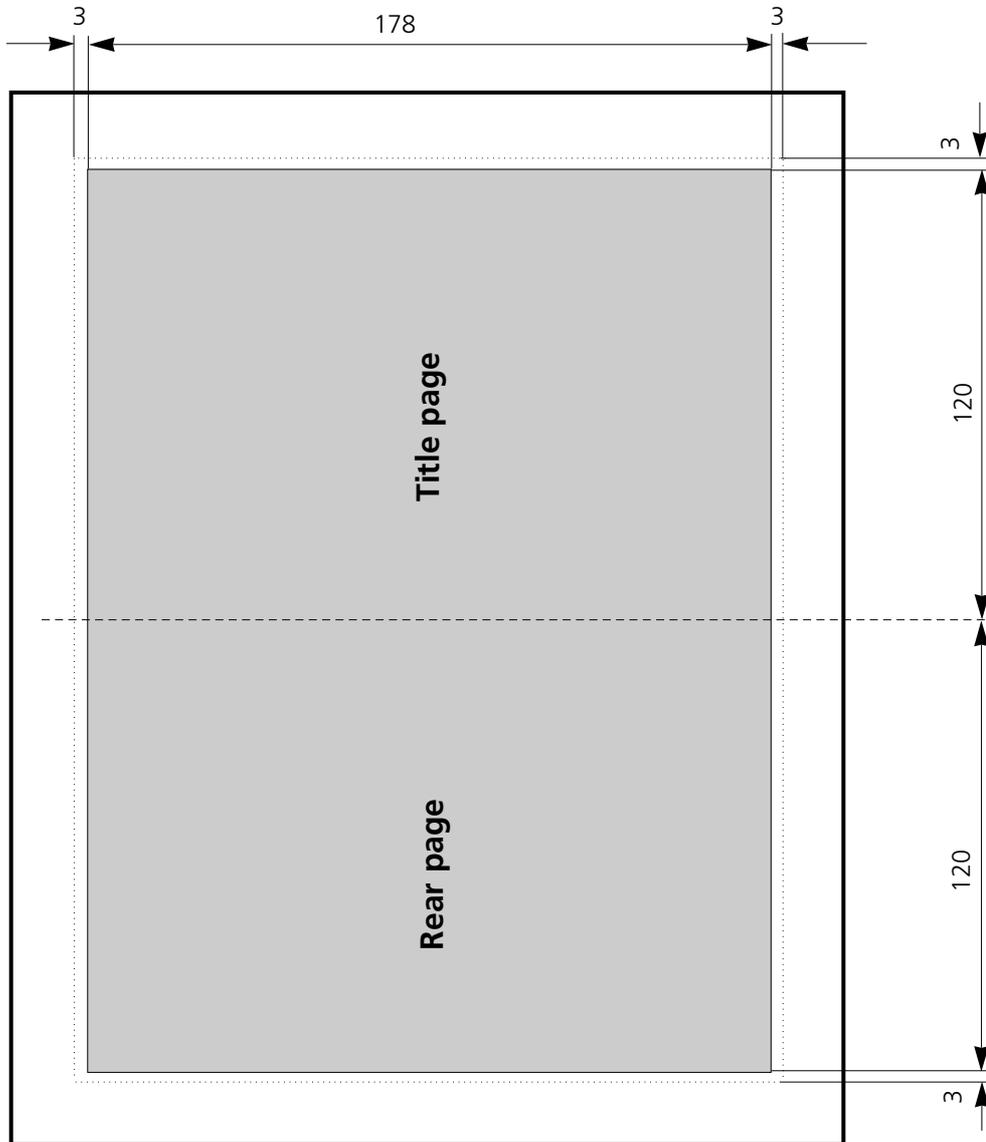
Explanation:

-  Area to be printed with text
-  Final dimension
-  Bleed
-  Minimum of blank film dimension (at least 20 mm distance to final dimension)



# Film Specifications: Booklet for Super Jewel Box

## Film Specifications: Booklet for Super Jewel Box



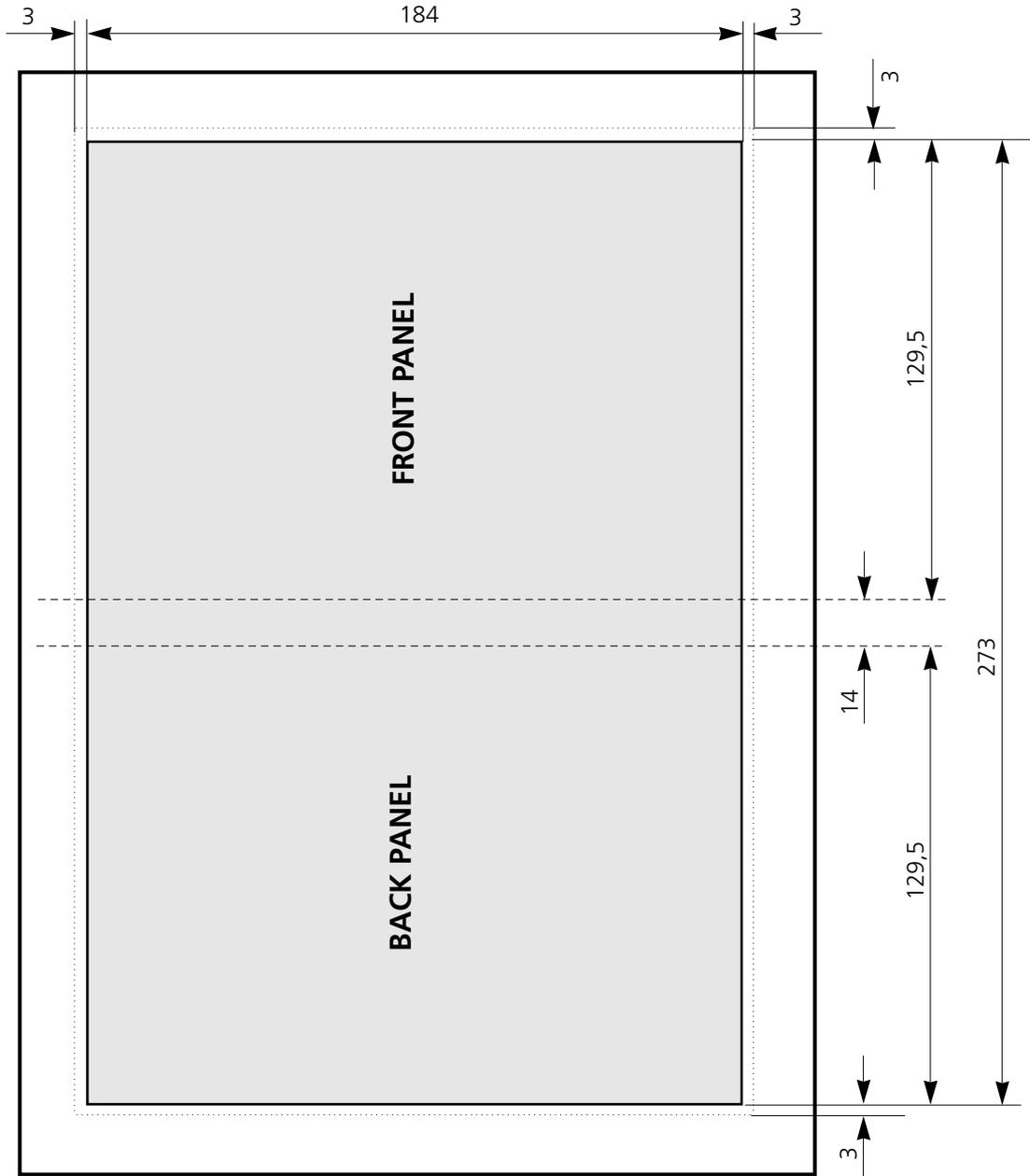
All dimensions in mm

Explanation:

-  Area to be printed with text
-  Final dimension
-  Bleed
-  Minimum of blank film dimension (at least 20 mm distance to final dimension)



Film Specifications: Cover Sheet for Amaray Box



Explanation:

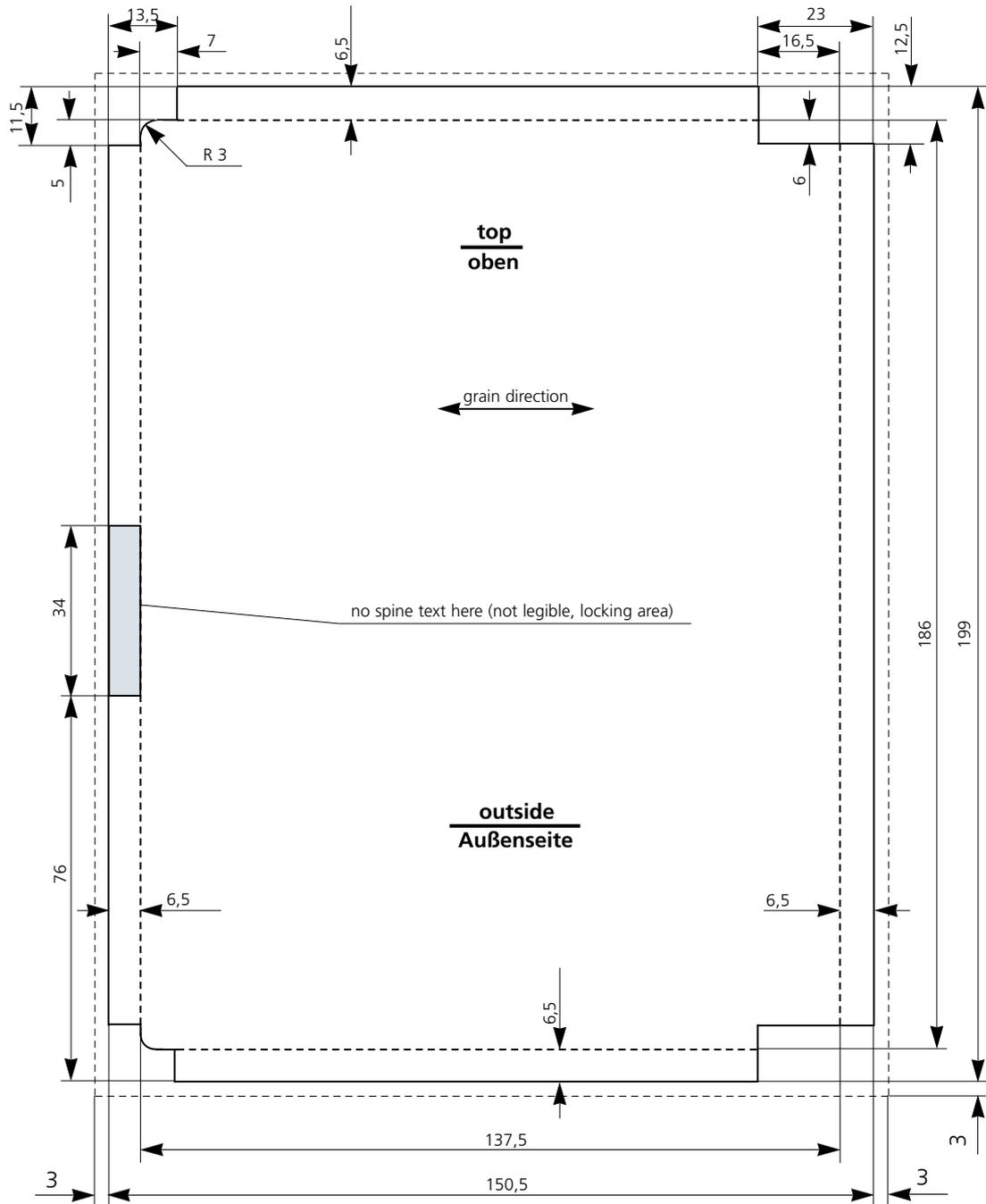
All dimensions in mm

- Area to be printed with text
- Final dimension
- Bleed
- Minimum of blank film dimension (at least 20 mm distance to final dimension)



# Film Specifications: Inlay Card for Super Jewel Box

## Film Specifications: Inlay Card for Super Jewel Box

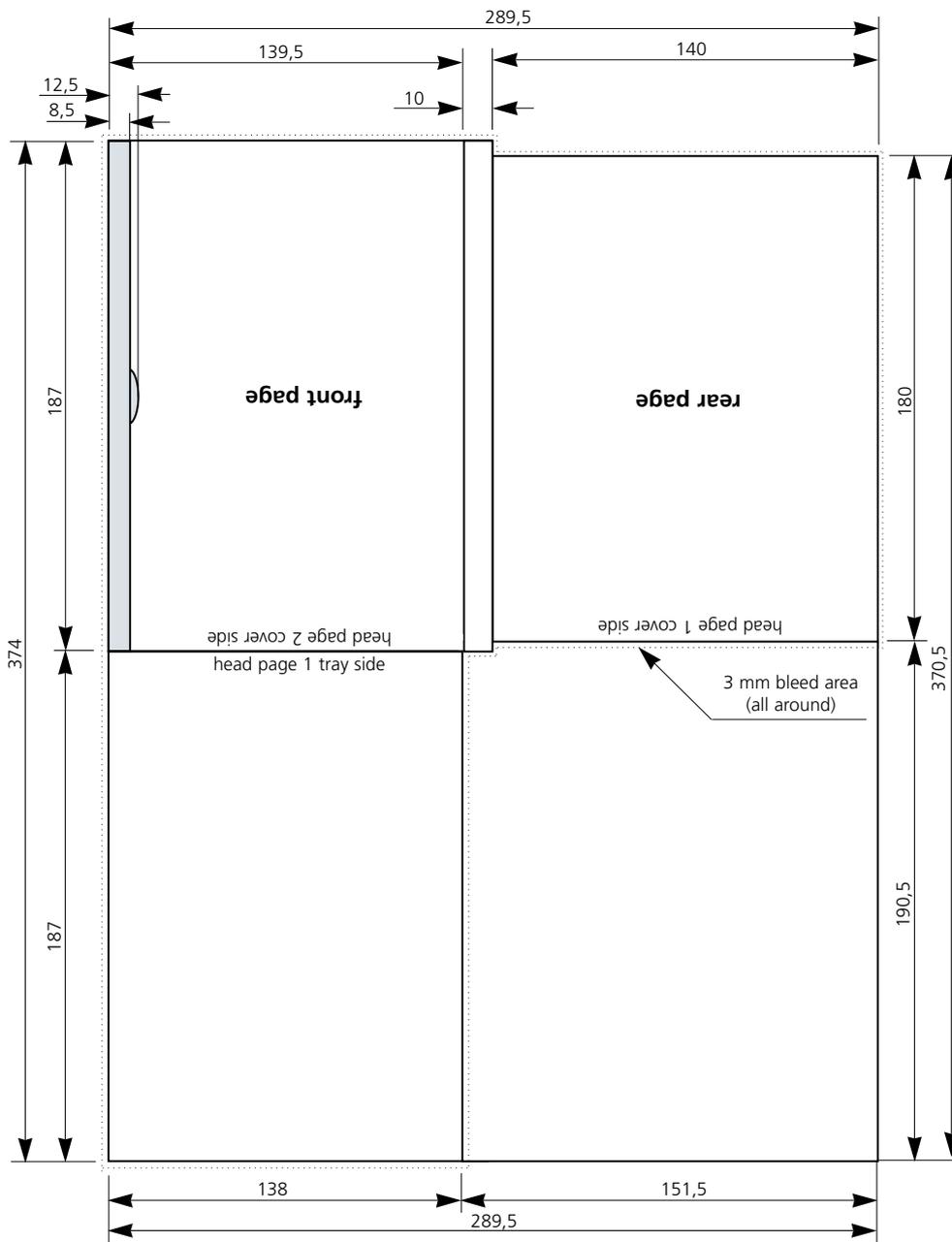


Explanation:

All dimensions in mm

- Final dimension
- Bleed
- Minimum of blank film dimension must have at least 20 mm distance to final dimension

Film Specifications: ECOPAK



All dimensions in mm

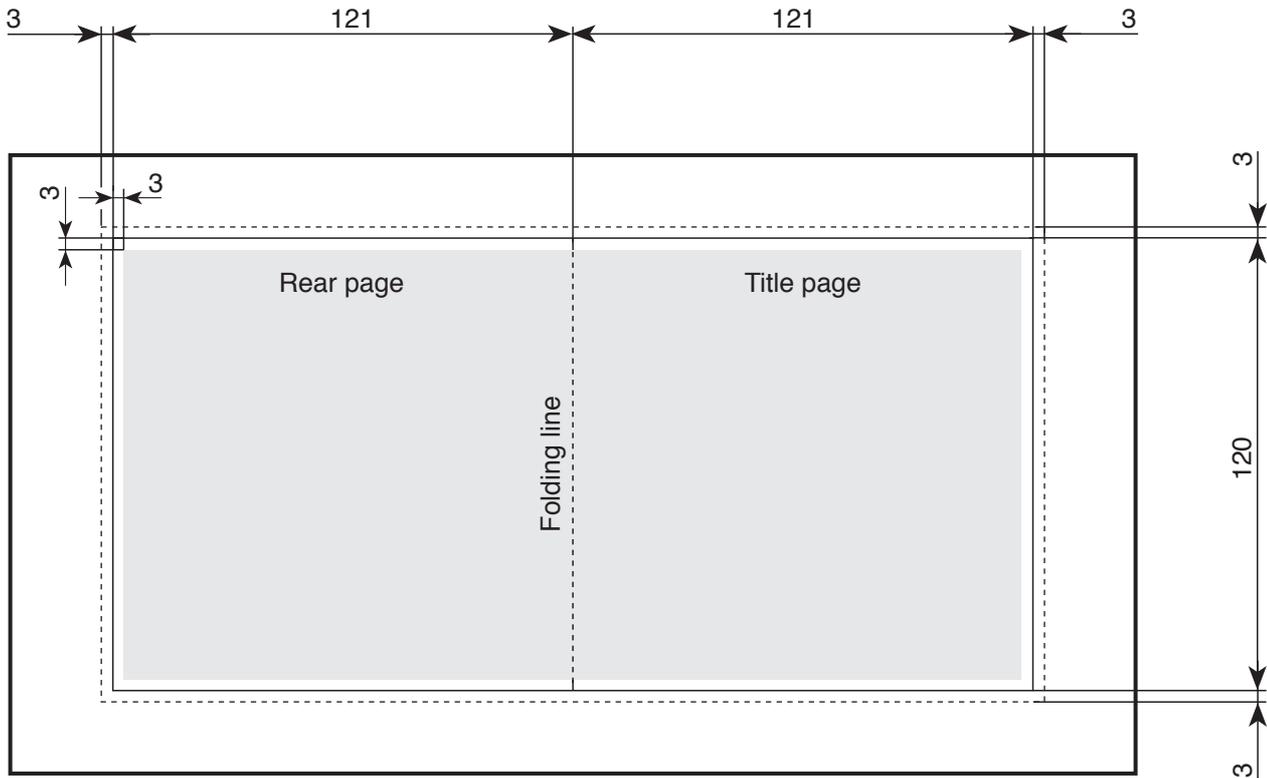
Explanation:

- Final dimension
- ..... Bleed
- Minimum of blank film dimension must have at least 20 mm distance to final dimension



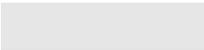
## Film Specifications - Booklet for Jewel Case

### Film Specifications: *Booklet for Jewel Case*



Explanation:

All dimensions in mm

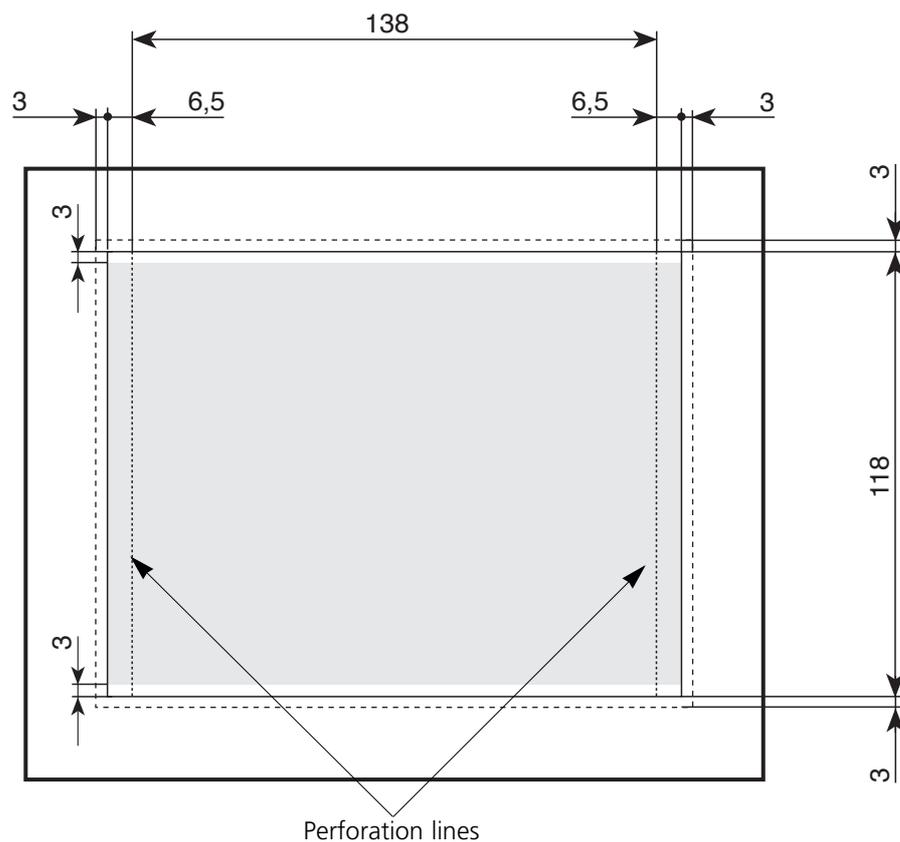
-  Area to be printed with text
-  Final dimension
-  Bleed
-  Minimum of blank film dimension  
(at least 20 mm distance to final dimension)

All films (except for cover page) must have page numbers.  
Without page numbers, Sony DADC will not assume responsibility for correct assembly.

# Film Specifications - Inlay Card for Jewel Case



**Film Specifications:** *Inlay Card for Jewel Case* (also backliner, inlay card with perforations at the back)



Explanation:

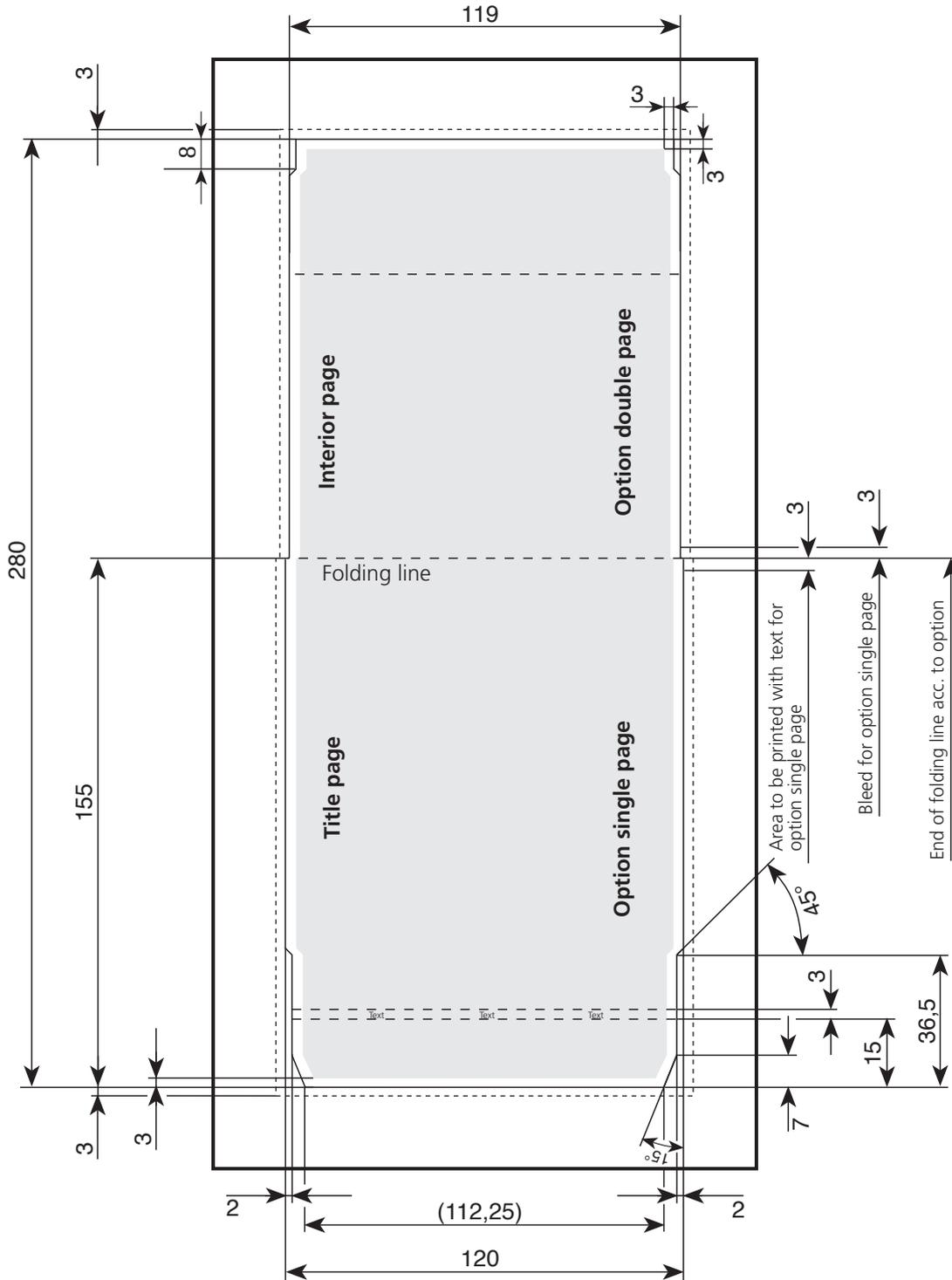
All dimensions in mm

-  Area to be printed with text
-  Final dimension
-  Bleed
-  Minimum of blank film dimension (at least 20 mm distance to final dimension)



# Film specifications – 2-Piece Box Title Card

Film specifications: *Title card for 2-piece thin Jewel Box (also Slim Jewel Case/2 Piece Box)*



Explanation:

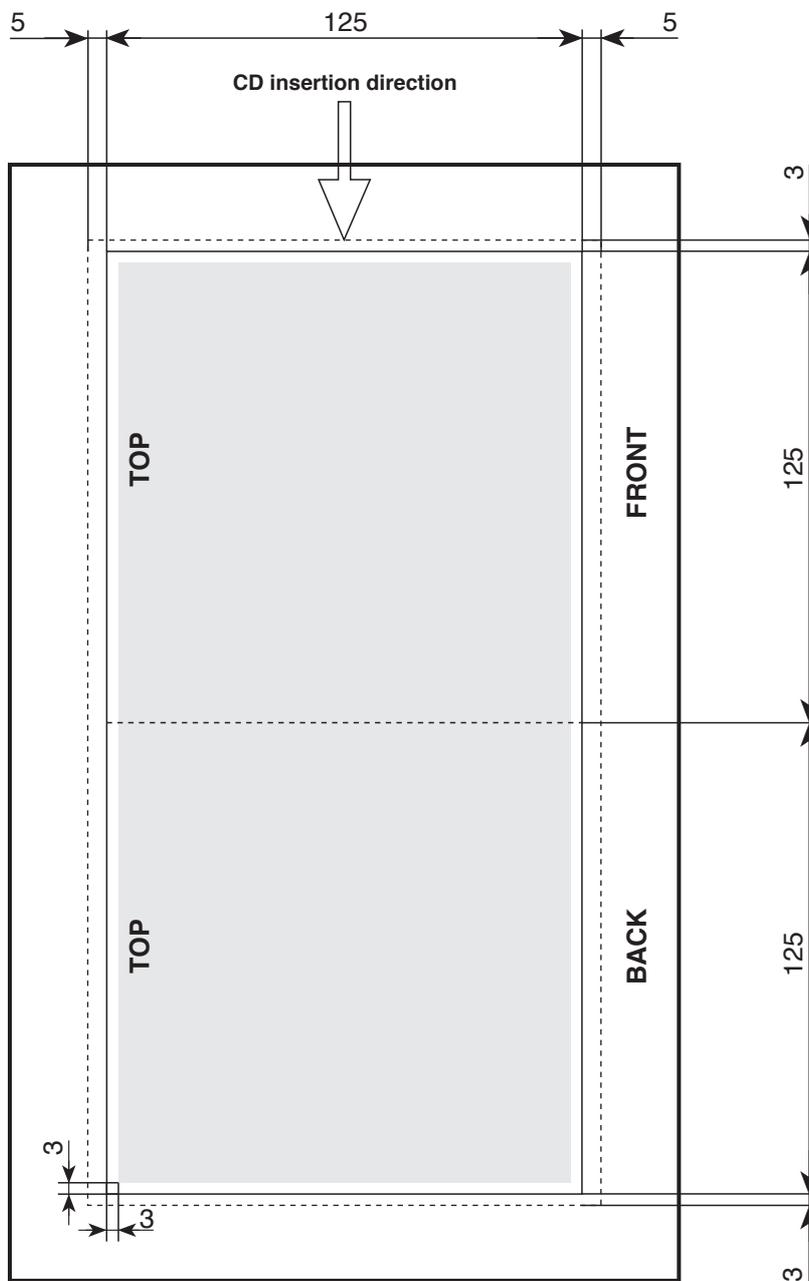
-  Area to be printed with text
-  Final dimension
-  Bleed
-  Minimum of blank film dimension (at least 20 mm distance to final dimension)

Scale 1:2  
All dimensions in mm

# Film Specifications - 12 cm Carton Sleeve

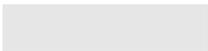


## Film Specifications: 12 cm CD Carton Sleeve



Explanation:

All dimensions in mm

-  Area to be printed with text
-  Final dimension
-  Bleed
-  Minimum of blank film dimension (at least 20 mm distance to final dimension)

## 6.3. Specifications for Printwork and Stickers

When supplying ready-made printwork we ask you to comply with the following specifications:

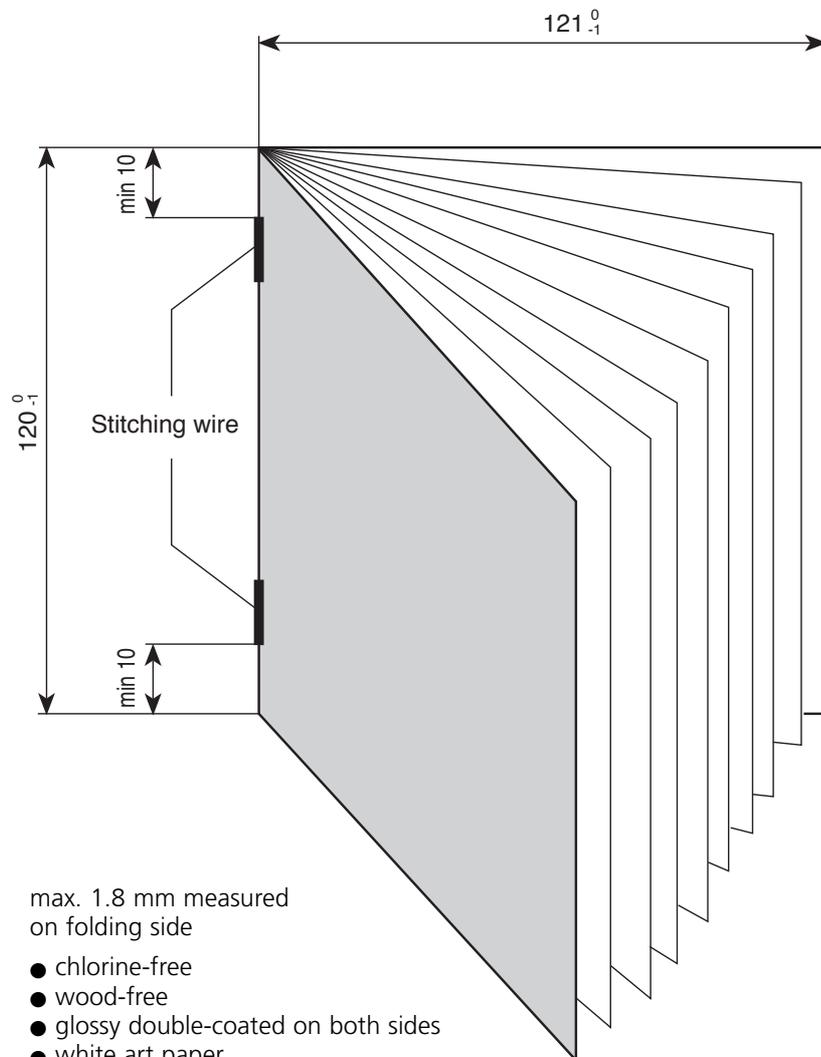
### Booklet

Validity for machine processing of the following standard packagings:

- Jewel Case

Cover sheet (mm)*	Interior Sheet (mm)*	Number of <b>interior</b> pages to be printed	Number of <b>cover sheet</b> pages to be printed	Maximum number of pages to be <b>printed</b>
0,15	0,08	36	4	40
0,15	0,07	40	4	44
0,15	0,06	48	4	52
0,15	0,05	56	4	60

\*Paper thickness



All dimensions in mm

Thickness:

max. 1.8 mm measured on folding side

Paper:

- chlorine-free
- wood-free
- glossy double-coated on both sides
- white art paper

Cover page:

- min. 160 g/m<sup>2</sup> - 180 g/m<sup>2</sup>

Condition at time of supply:

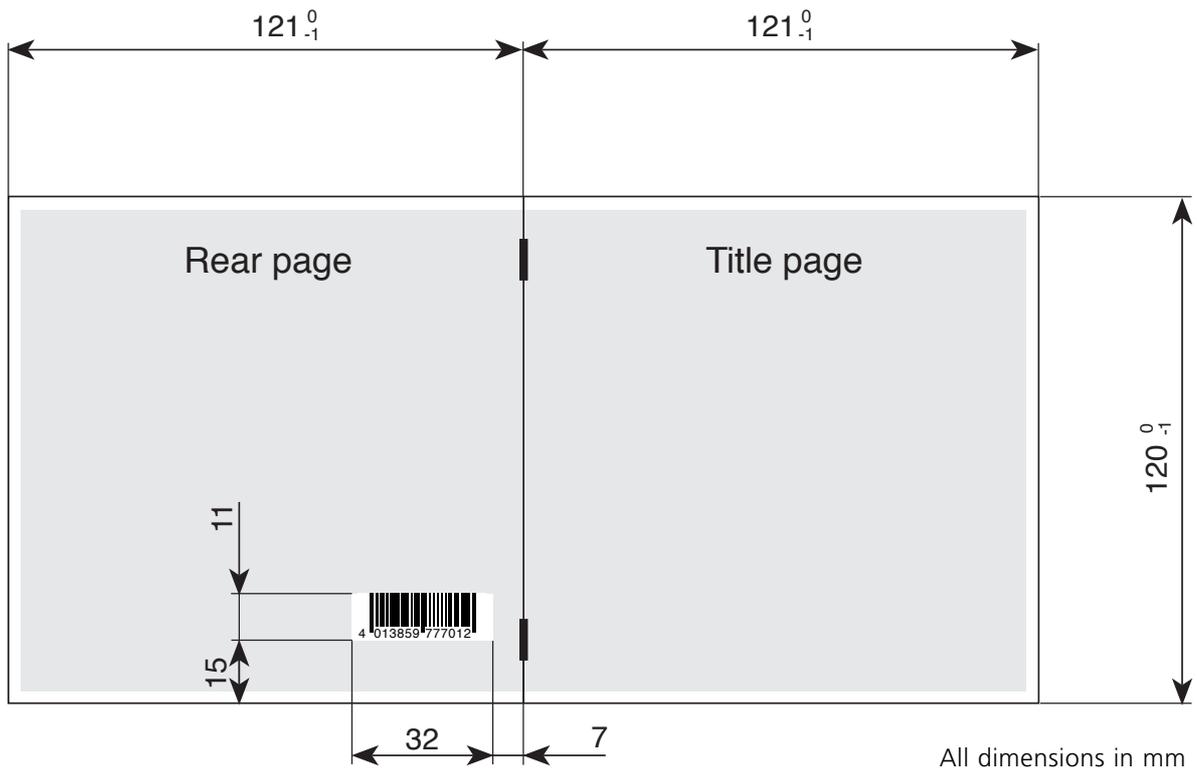
- upright in carton box (see fig. page 44)

# Specifications for Printwork



## Position specifications for barcode (booklet)

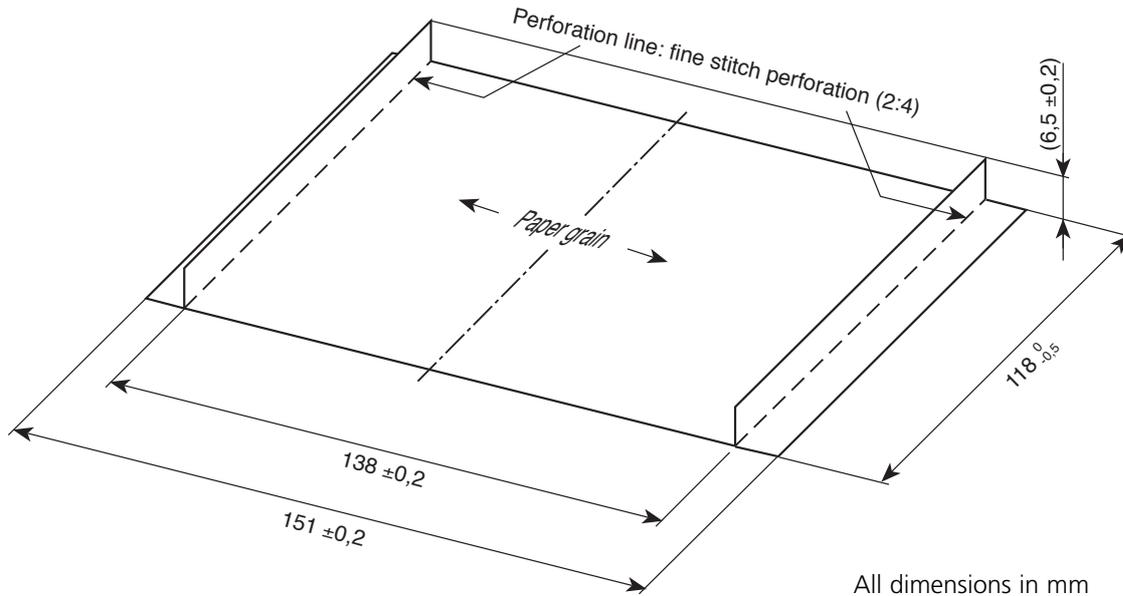
- **Barcode types:** UPC/EAN128, Code 39, CODABAR, 2/5 Industrial
- **Position:** back, right, horizontal (see drawing)
- **Barcode height:** min. 11 mm



## Inlay Cards for Jewel Case

Validity for machine processing of the following standard packagings: ● Jewel Case

Measuring condition: flat



- Paper:
- chlorine-free
  - wood-free
  - glossy double-coated on both sides
  - white art paper

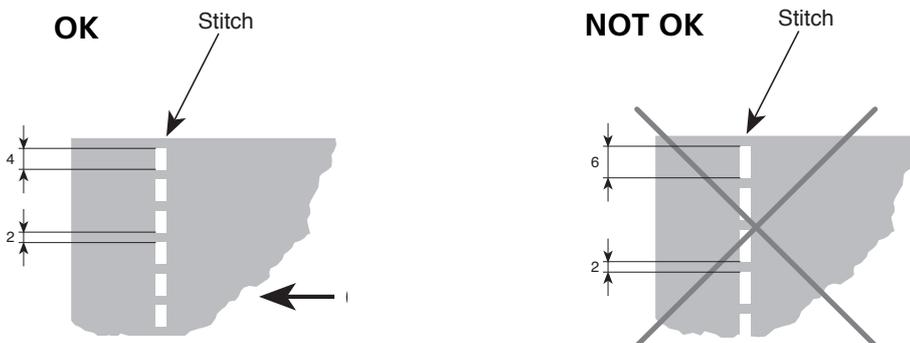
Cover page: ● 160 g/m<sup>2</sup> - 180 g/m<sup>2</sup>

Condition at time of supply: upright in carton box (see fig. page 44)

Note: With inlay cards printed on both sides, the externally visible side has to be defined (please mark on the films outside of the area to be printed).

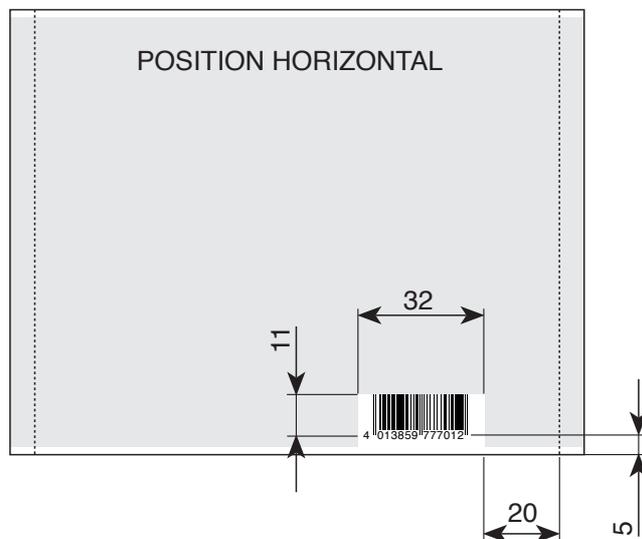
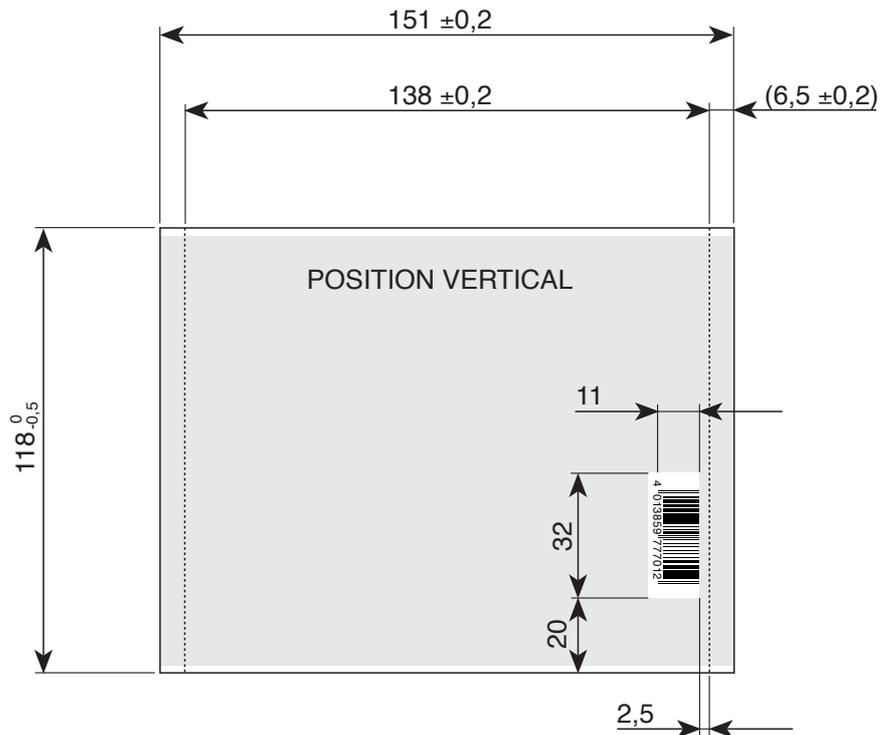
### Processing specification:

The perforation stitches have to be in a ratio of 2:4 and can be tolerated in direction 1:1 (see drawing).



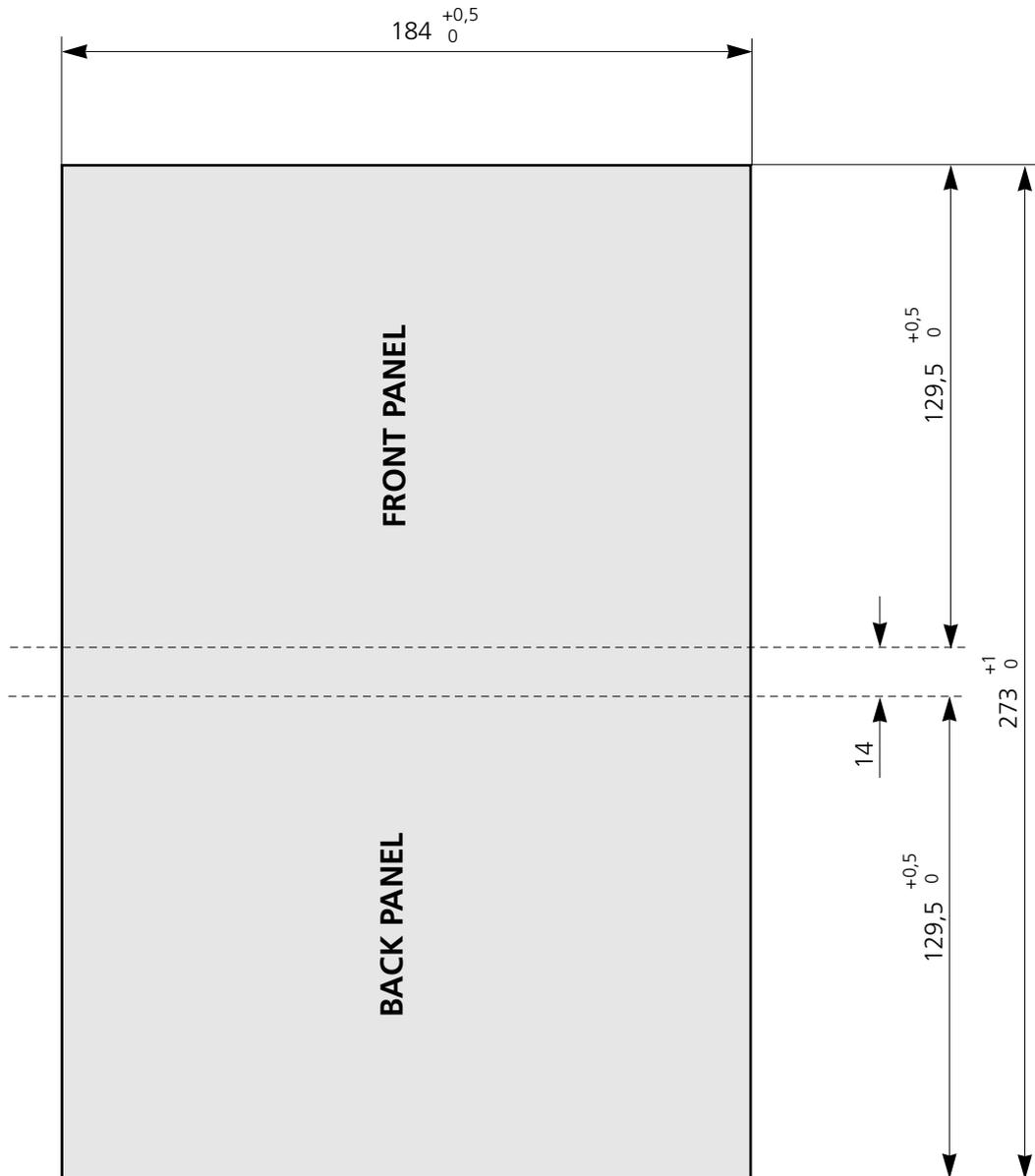
## Position Specifications for Barcode (Inlay Card):

- **Barcode types:** UPC/EAN 128, Code 39, CODABAR, 2/5 Industrial
- **Position:** right, vertical (see drawing)
- **Alternative:** right, horizontal (see drawing)
- **Barcode height:** min. 11 mm



All dimensions in mm

## Cover Sheet for Amaray Box (king size)



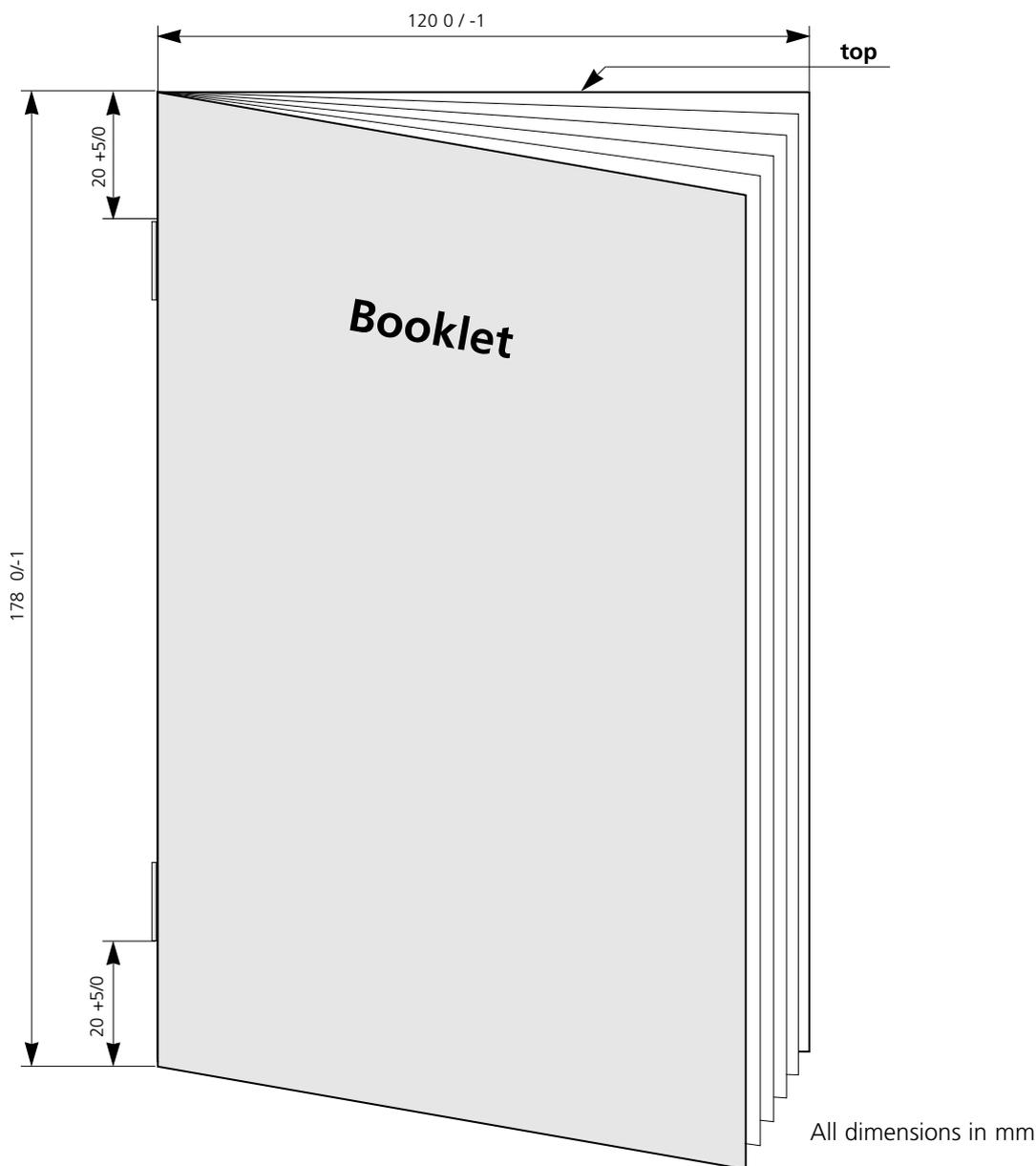
- Paper:
- chlorine-free
  - wood-free
  - glossy double-coated on both sides
  - white art paper

All dimensions in mm

- Cover page:
- 160 g/m<sup>2</sup> - 180 g/m<sup>2</sup>

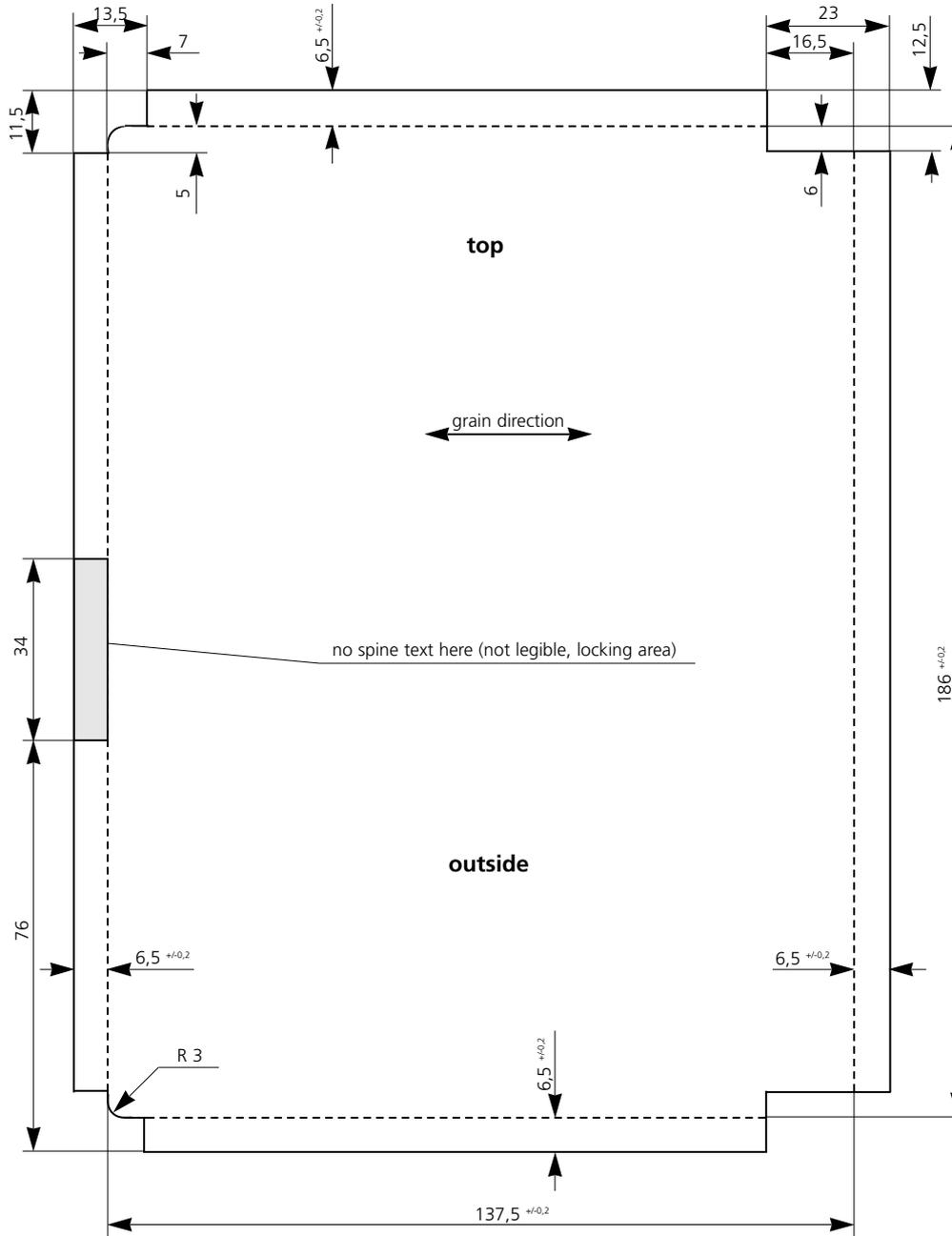
Condition at time of supply: upright in carton box (see fig. page 43)

**Amaray Box and Super Jewel BOX**



- |                              |   |
|------------------------------|---|
| Thickness:                   | <ul style="list-style-type: none"> <li>max. 1.8 mm for Super Jewel Box</li> <li>max. 3.0 mm for Amaray Box</li> <li>(measured on folding side)</li> </ul>       |
| Paper:                       | <ul style="list-style-type: none"> <li>● chlorine-free</li> <li>● wood-free</li> <li>● glossy double-coated on both sides</li> <li>● white art paper</li> </ul> |
| Cover page:                  | <ul style="list-style-type: none"> <li>● min. 160 g/m<sup>2</sup> - 180 g/m<sup>2</sup></li> </ul>  |
| Condition at time of supply: | <ul style="list-style-type: none"> <li>● upright in carton box (see fig. page 43)</li> </ul>  |

## Super Jewel Box Inlay



All dimensions in mm

- Paper:
- chlorine-free
  - wood-free
  - glossy double-coated on both sides
  - white art paper

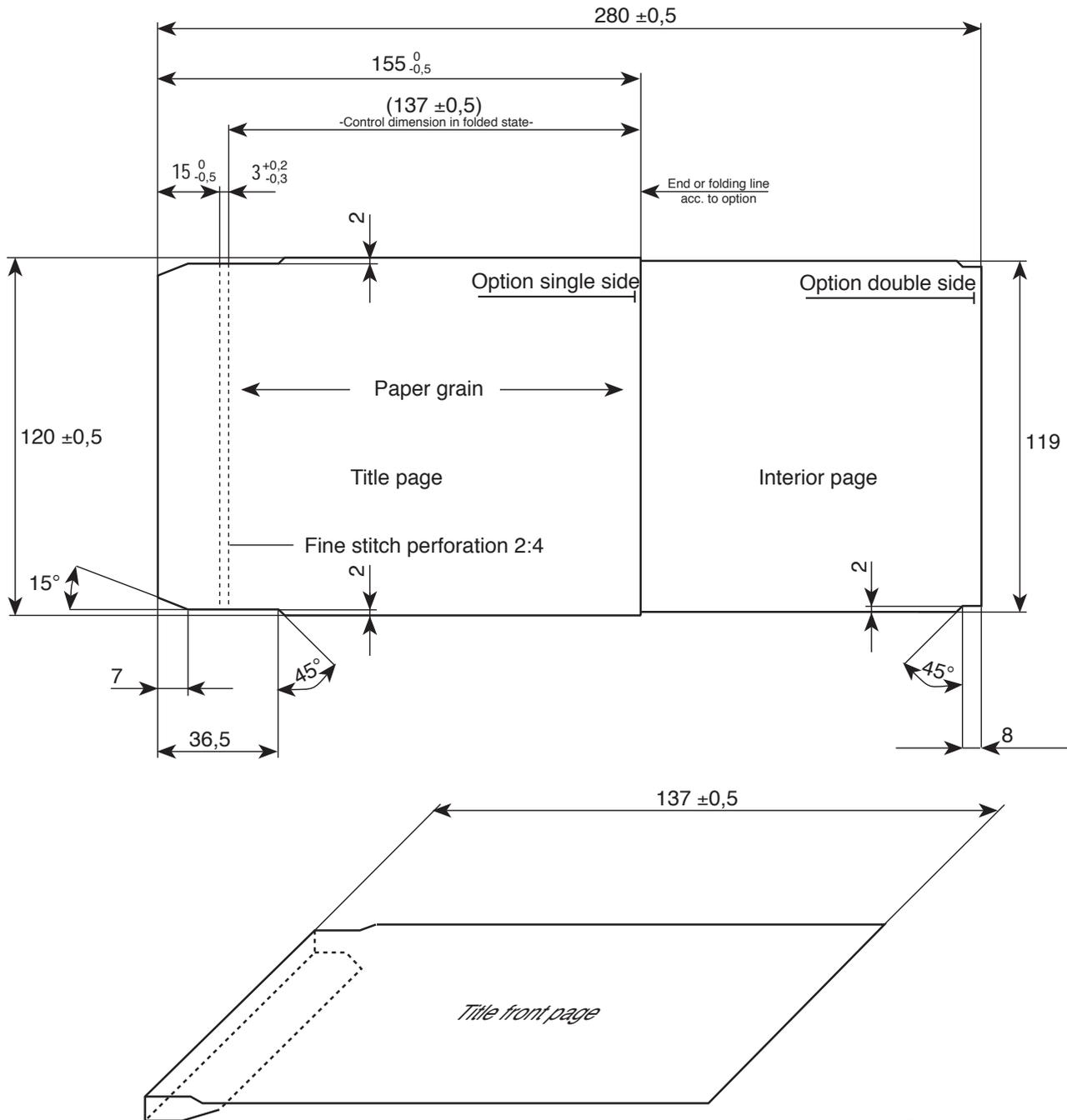
Cover page: ● 160 g/m<sup>2</sup> - 180 g/m<sup>2</sup>

Condition at time of supply: upright in carton box (see fig. page 43)

Note: With inlay cards printed on both sides, the externally visible side has to be defined (please mark on the films outside of the area to be printed).

## 2-Piece Box Title Card

Validity for machine processing of standard packaging: ● 2-Piece Box.

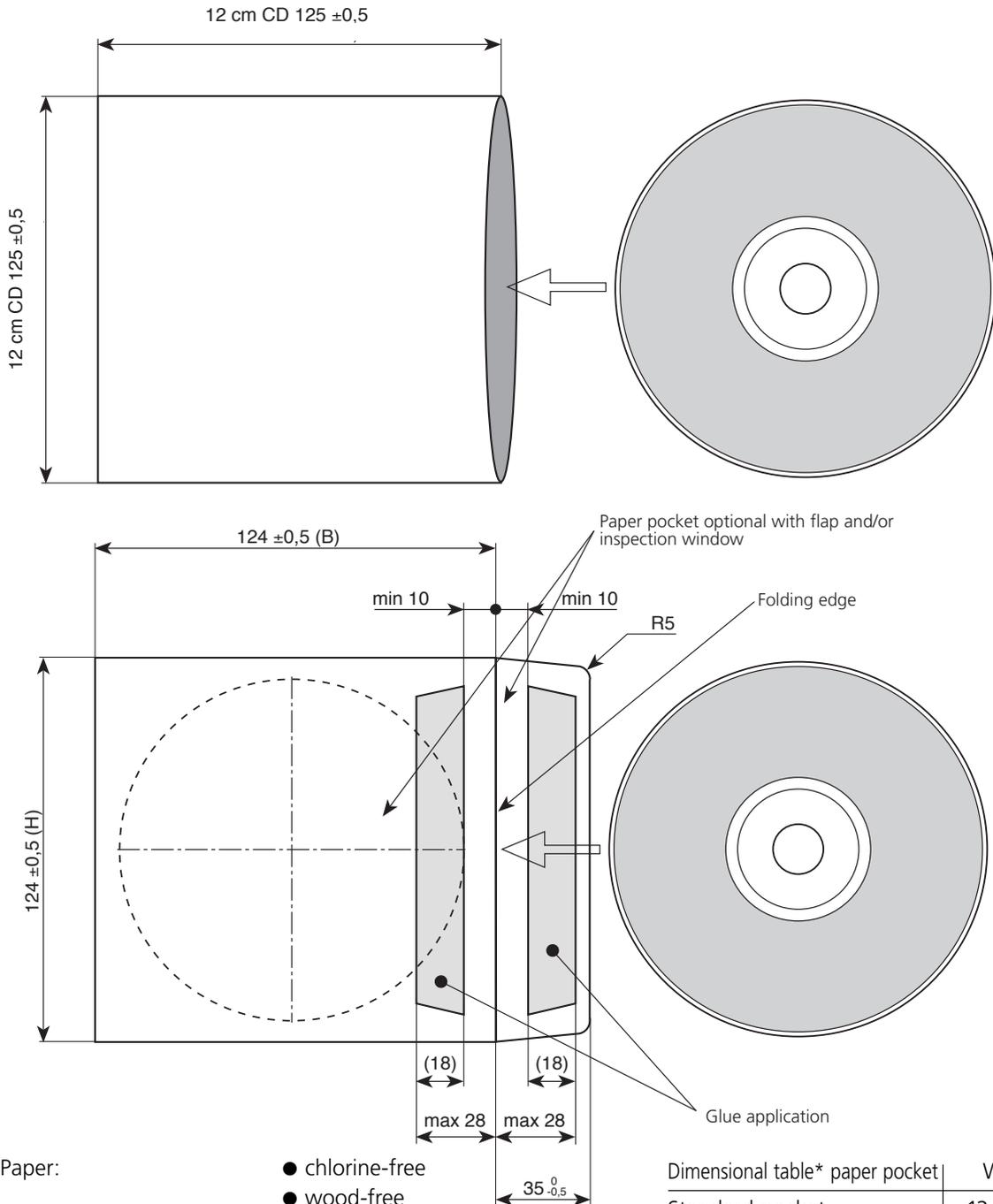


All dimensions in mm

- Paper:
- chlorine-free
  - wood-free
  - glossy double-coated on both sides
  - white art paper
- Cover page:
- $160 \text{ g/m}^2 - 180 \text{ g/m}^2$
- Condition at time of supply: ● upright in carton (see fig. page 44)

## 12 cm Carton Sleeves and/or 12 cm Paper Pocket

(in various models, available printed and non-printed, formats see dimensional table)



- Paper:
- chlorine-free
  - wood-free
- Carton sleeve:
- art paper (carton)
  - single coated: ~ 280 g/m<sup>2</sup> and thickness of approx. 0.40 mm
  - or double coated: ~ 285 g/m<sup>2</sup>
- Paper sleeve:
- offset paper
  - 90 g/m<sup>2</sup> or 150g/m<sup>2</sup>
- Condition at time of supply: ● upright in carton (see fig. page 44)

Dimensional table* paper pocket	W	H
Standard pocket	124 <sup>±0,5</sup>	124 <sup>±0,5</sup>
Pocket with booklet	132 <sup>+1</sup> <sub>0</sub>	132 <sup>+1</sup> <sub>0</sub>
Special format	145 <sup>+1</sup> <sub>0</sub>	190 <sup>+1</sup> <sub>0</sub>

\* For insertion in thermal plastic binding machines

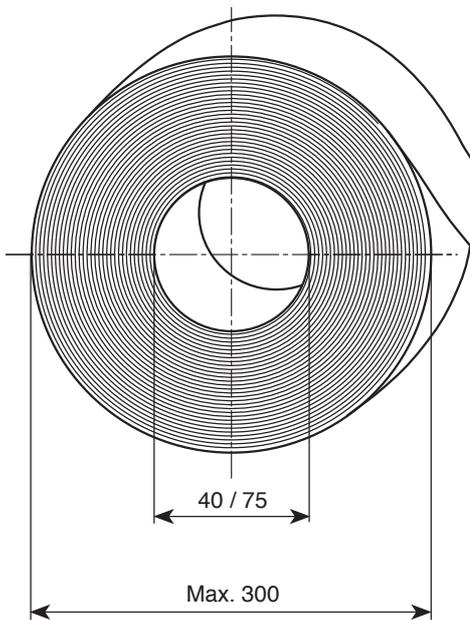


## Stickers

Stickers are processed as self-adhesive labels supplied on rolls.

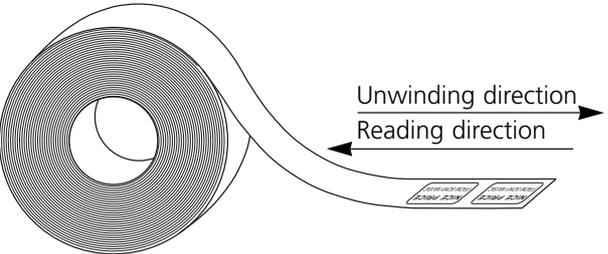
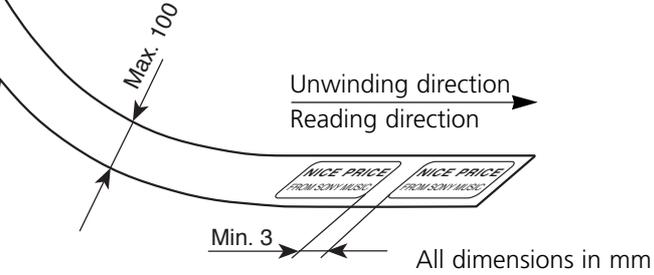
- Possible core diameter: 40 or 75 mm
- Max. possible roll diameter: 300 mm
- Eliminate punching grid (do not leave on the roll).
- Distance between the stickers: at least 3 mm.

- Position stickers with letters or various print in unwinding direction, if application is to the upper side of the box.
- Punched paper base cannot be processed further.
- Stickers not complying with the standard cannot be processed on the machine and will increase costs considerably.



### Sticker sizes to be processed on machine:

min. 10x10 or Ø 15  
max. 110x90 or Ø 90



Arrangement of stickers on the roll for the **lower side** of the box.

### Positioning of the sticker

V = position of the sticker on the front side (V/. /.)

H = position of the sticker on the rear side (H/. /.)

Example: V/A1  
sticker on position A1/front side  
H/B2  
sticker on position B2/rear side

Stickers can be processed automatically on the upper and lower side of the box. To indicate the desired position of the sticker on the box please use the diagram opposite.

### Position diagram

<b>A1</b>	<b>B1</b>	<b>C1</b>	<b>D1</b>
<b>A2</b>	<b>B2</b>	<b>C2</b>	<b>D2</b>
<b>A3</b>	<b>B3</b>	<b>C3</b>	<b>D3</b>
<b>A4</b>	<b>B4</b>	<b>C4</b>	<b>D4</b>

## Digipak Index

D04.1	<b>DIG0001:</b>		D08.1	<b>DIG0022:</b>	
D04.1/A	<b>DIG0002:</b>		D08.2	<b>DIG0010:</b>	
D04.2	<b>DIG0003:</b>		D08.2	<b>DIG0024:</b>	
D06.1	<b>DIG0004:</b>		D10T.1	<b>DIG0011:</b>	
D06.1	<b>DIG0005:</b>				
D06.1	<b>DIG0006:</b>				
D06.1/A	<b>DIG0031:</b>		D10C.1	<b>DIG0030:</b>	
D06.2	<b>DIG0007:</b>				
D06.2	<b>DIG0008:</b>				
D08.1	<b>DIG0009:</b>		DM104.1	<b>DIG0012:</b>	

The Digipak, which consists of a compound of plastics and carton, requires hand packaging.

**Note:**

The DIGIPAK packing format is patented. If you have any questions, please ask your Customer Service Contact who will be pleased to provide information on the various special formats and their processing possibilities.

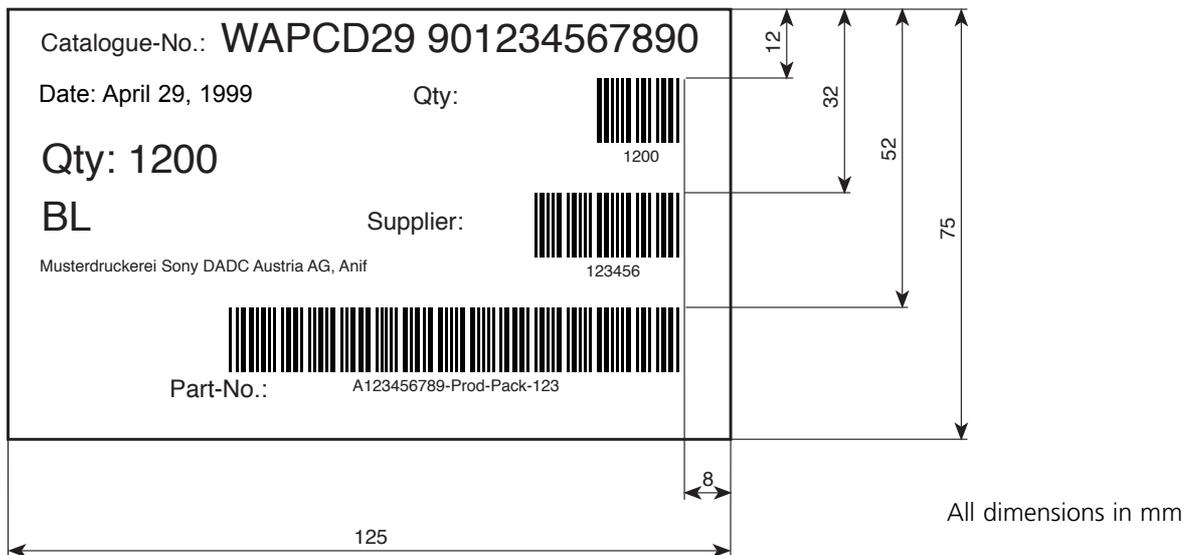


## 6.4. Packaging of Supplied Printwork

When supplying ready-made printwork please note the following items:

- Delivery according to agreement**  
 The delivery of ready-made printwork should be carried out only following previous agreement with the Sony DADC Customer Service staff.
- Printwork delivery**  
 Your printwork delivery must comply with the Sony DADC specifications (dimensions, paper type and thickness, catalogue number, bar code, designation of origin, perforation). Since packaging is carried out automatically, please note that non compliance with the specifications causes unnecessary additional expenses and longer processing time. Sony DADC reserve the right to charge additional costs caused by sorting, manual packaging or the return of the goods delivered.

- Minimum quantity**  
 The minimum quantity is 300. Due to start-up losses as well as possible waste please add to your delivery an additional 10% of printwork over and above the number of DVDs ordered by you.
- Different printwork**  
 Different printwork (such as inlay cards and booklets or various DVD titles) have to be delivered in separated cartons.
- Delivery in marked carton**  
 If possible, delivery should be carried out in cartons (see drawing page 40) provided with adequate marking (see label, sample carton).
- Delivery of stickers**  
 Provide an adequate label on the carton (see sample). Furthermore, the general Sony DADC specifications for stickers shall apply.
- Storage**  
 In case that you deliver more printwork than your DVD order and request storage, we ask your to consult with Customer Service.  
 Storage expenses will be settled monthly according to the space required.

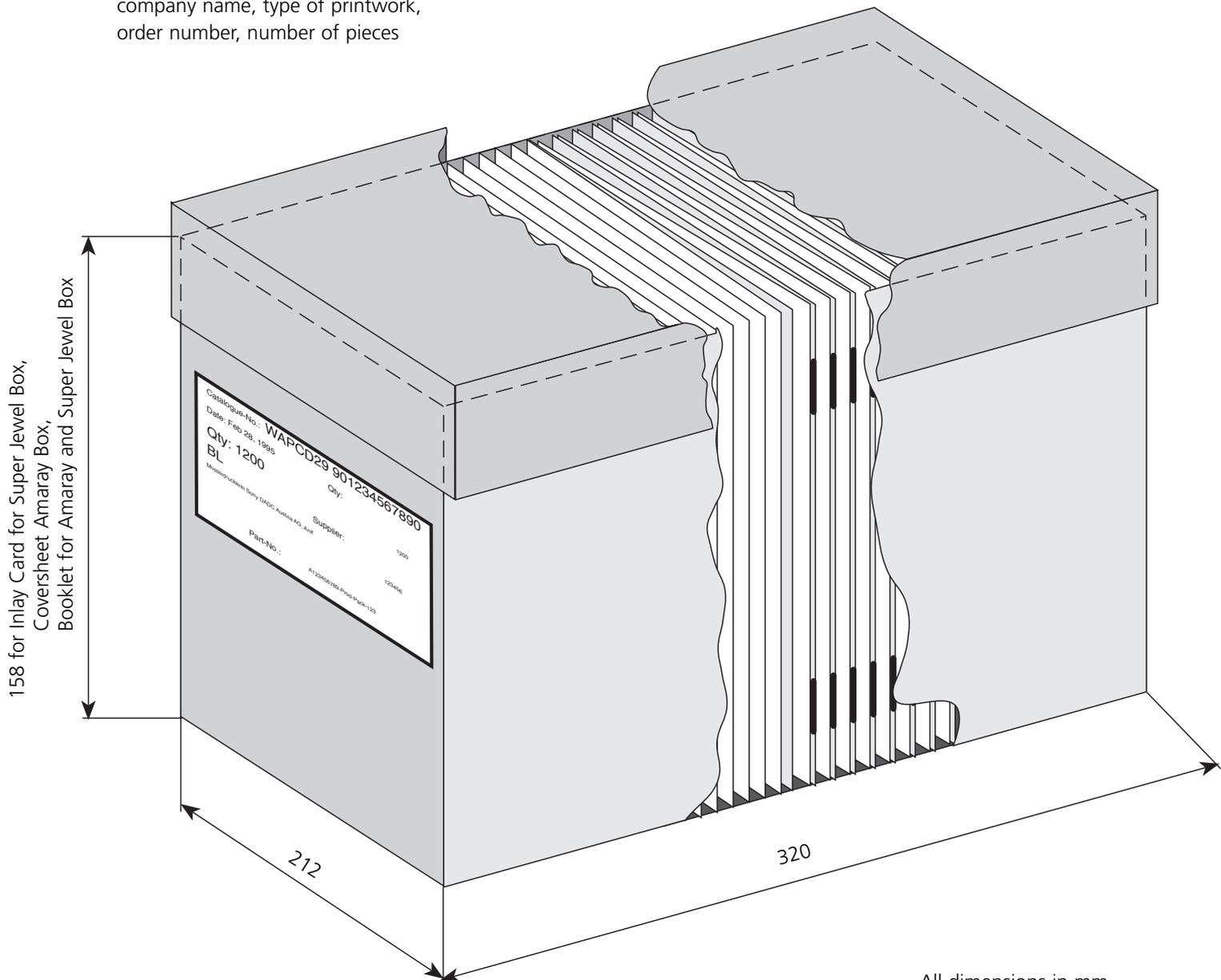




## Specifications for Printwork

The ready-made printwork for Inlay Cards for Super Jewel Box, Coversheets for Amaray Box and Booklets for Amaray Box and Super Jewel Box should be delivered as follows:

- upright (vertically or horizontally)
- uniform orientation (title sheet always in one direction)
- crash-proof multi-use carton (optimally approx. 30 cm long)
- carton marked - catalogue number, title, company name, type of printwork, order number, number of pieces

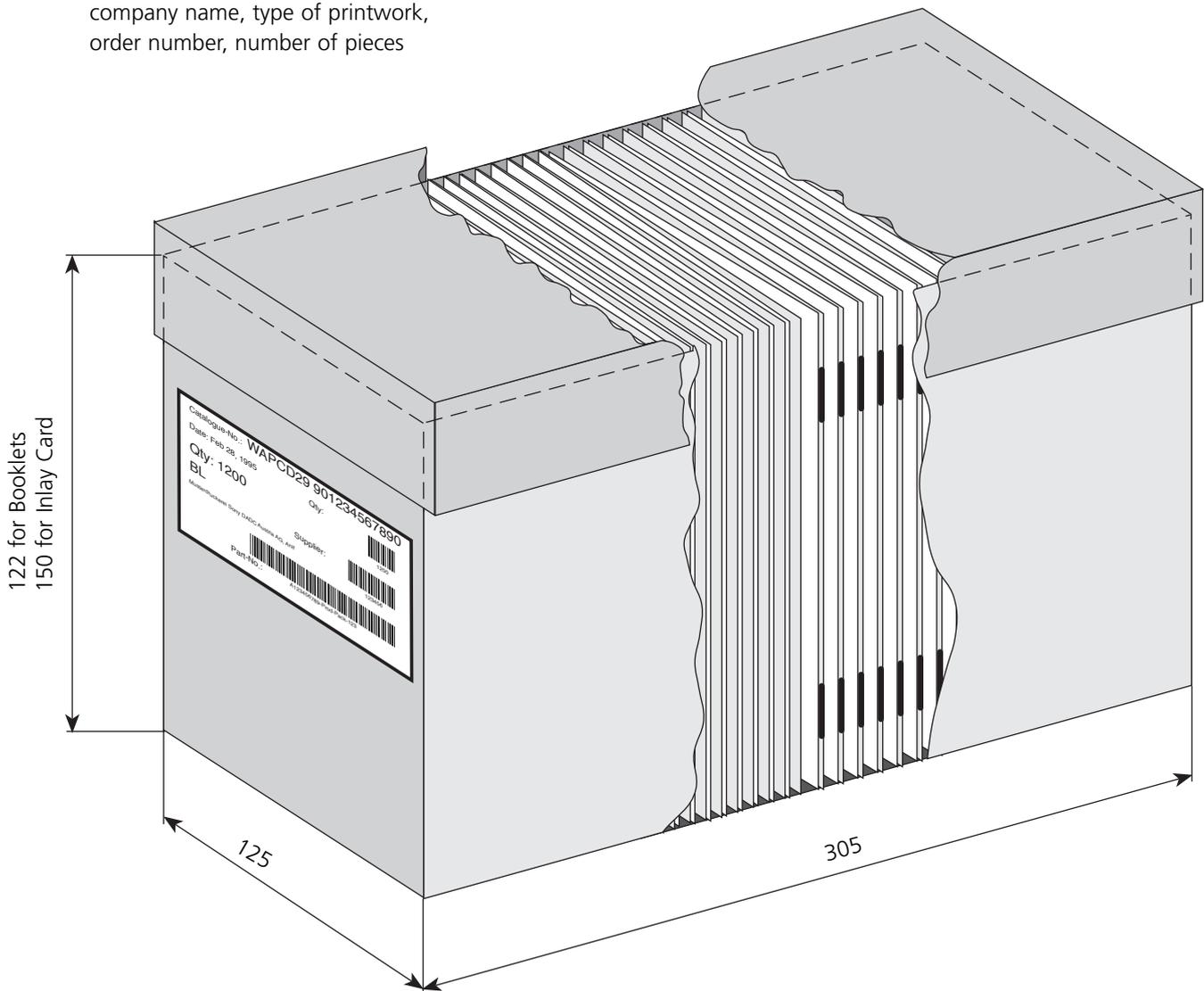


All dimensions in mm



The ready-made printwork for Booklets and Inlaycards for Jewel Case should be delivered as follows:

- upright (vertically or horizontally)
- uniform orientation (title sheet always in one direction)
- crash-proof multi-use carton (optimally approx. 30 cm long)
- carton marked - catalogue number, title, company name, type of printwork, order number, number of pieces



All dimensions in mm



## 7. Sony DADC – The Company

Sony DADC Austria AG is a one hundred percent daughter company of the Sony Corporation. Since being founded in 1986 to cater for the requirements of the European CD market, Compact Disc has emerged as the dominant sound-carrier. In 1996 more than 900 million units were sold in Europe. The CD has also become the basic technology for other optical storage products which include Laser Disc, MiniDisc, CD-ROM, CD-R, CD-EXTRA, DVD or Play Station Disc that were introduced on the market.

With a quantity of more than 300 million CDs

shipped annually Sony DADC is a leading manufacturer of optical storage media in Europe. Having two plants in Salzburg and the worldwide network with subsidiaries in Japan, Hongkong, Australia, USA, Canada, Mexico, Brazil and India, Sony DADC guarantees to our customers the highest levels of quality and service.

With separate development divisions and worldwide network capabilities Sony DADC stays at the forefront of CD production technology. This enhances our ability to meet customer specific requirements. Above all we create the basis for new products in the future thus ensuring the Sony Group will be your partner in the future also.

### Facts and Figures:

<b>Sites:</b>	Factory I - Anif/Salzburg Factory II - Thalgau/Salzburg	<b>Customers:</b>	approx. 2500 (International and European music and film companies, publishers, multimedia and information providers as well as computer and video game companies and the majority of software and hardware manufacturers)
<b>No. of employees:</b>	1998 approx. 1000	<b>ISO 9002:</b>	Certification 1995
<b>Capacity:</b>	1998 1.3 mio/day	<b>ISO 14001:</b>	Certification 1998
<b>Production quantity:</b>	more than 300 million units annually		

### Our products:

Product	Use	Size	Specification
Compact Disc	Audio	12 cm 8 cm	max. playing time 77min. max. playing time 21min. 50sec.
CD-ROM	Information processing/ Multimedia, Interactive Entertainment	12 cm 8 cm	max. 680 MB max. 192 MB
Video CD	Video/Film	12 cm	depending on combination audio/video/data
MiniDisc	Portable Audio	6.4 cm	playing time approx. 74 min.
PlayStation Disc	Interactive Entertainment	12 cm	max. 680 MB
CD EXTRA	Multimedia, Audio, Video, Data	12 cm 8 cm	max. 74 min. 30 sec. max. 655 MB
MD recordable	digitally re-record audio	6.4 cm	74 min
CD-R	Write once audio / data	12 cm	74 min or 655 MB
DVD	Video or ROM	12 cm	4.7 GB - 17.1 GB

**Sony DADC  
Customer Service  
Niederalm 282  
A-5081 Anif, Austria**

**Tel.: ++43-6246-880-555  
Fax: ++43/6246-880-510  
E-mail: [sales@dadc.co.at](mailto:sales@dadc.co.at)  
<http://www.sonydadc.com>**