

## TECHNICAL SPECIFICATION FOR MASTER AND LABEL PRINT MATERIALS PREPARATION

### 1. GENERAL INFORMATION

- All masters should be production ready and edited exactly as expected in the final product.
- All masters must be labeled as described in section VI of this document.
- Clients must keep a back up master for their own use and security.
- All masters must be of the best quality, free of physical damage, errors etc.
- All masters should be adequately protected against possible damage during transportation to TAKT.
- All masters should meet the recommended specifications for the respective format (e.g. DVD-BOOK, RED-BOOK, etc).
- In case of online transfers, regardless of the transmission method, checksums must be provided in the MD5 format. The checksum preparation manual is in Annex 1.
- Defective masters or those that do not meet the recommended specifications may incur delays and change the process of possible complaints handling.
- Failure to meet the delivery day of materials may delay the delivery of the finished product, for which TAKT will not be liable.
- Artwork should be provided together with masters. This is necessary to identify the contents and to confirm copyrights (the requirements of the APCP anti-piracy program).

### 2. CD FORMAT

- All CDA masters should be prepared in accordance with the specifications of the PHILIPS Red Book.
- ISRC/UPC/EAN and CD-TEXT codes must be implemented in a master if they are to be on the molded discs.
- Masters containing ISRC/UPC/EAN and CD-TEXT codes should be clearly marked - a complete list containing ISRC/UPC/EAN and CD-TEXT codes and corresponding number of tracks must be enclosed with a master.
- ISRC codes implementation is carried out only after consultation with a salesperson for an extra fee.
- The Philips Red Book specifies that CD recordings should not exceed 74 min and 44 s. Most (not all) CD audio players support long-play discs, up to 80 min. However, not all players will work properly with discs longer than 78 minutes.
- The Philips Red Book specifies that the number of tracks should not exceed 99. It can be increased using index marks set inside a track. However, not all players will work with index marks. Minimum duration for a track is 4 seconds.

**TAKT does not take the responsibility for discs longer than 78 minutes.**

### 3. ADDITIONAL INFORMATION FOR THE CD-ROM FORMAT

Depending on the type of sector a standard CD- ROM can contain:

- 656 MB (76 min 30 s) of data in module 1 (recommended)
- Or a bit larger capacity in module 2

### 4. ACCEPTABLE WAYS OF MASTERS SUBMISSION

#### 4.1 ASPERA AND FTP SERVERS (ASPERA is recommended for the master images transmission)

- Discs images can be transmitted online to TAKT to the ASPERA or FTP servers. The manual of files transmission to the FTP and the Aspera servers is in Annex 2.
- Downloading files from other servers - fileshare, dropbox, wetransfer etc. is not accepted
- Each electronic image must be accompanied by a checksum. The checksum generation manual is in Annex 1.
- To create a stamper, only the following image file formats are suitable:

Table No. 1

Product	Preferred File Format
CD-AUDIO	DDP 1.x, DDP 2.x, CMF 1.x
CD-AUDIO + CD-TEXT	DDP 1.x, DDP 2.x, CMF 1.x
CD-ROM	DDP 1.x, DDP 2.x, CMF 1.x
CD-VIDEO	DDP 1.x, DDP 2.x, CMF 1.x
DVD-AUDIO	DDP 2.x, CMF 1.x
DVD-VIDEO	DDP 2.x, CMF 1.x
DVD-ROM	DDP 2.x, CMF 1.x
DVD-VIDEO + ROM	DDP 2.x, CMF 1.x
DEPENDING ON THE DISC FORMAT *(excluding DVD9 VIDEO)	BIN + CUE, IMG, ISO, NRG

- BIN, IMG, ISO, MDS and NRG formats are also accepted (excluding DVD9 VIDEO) for an extra fee of EURO 10 if this is agreed with a sales person of TAKT.

**NOTE:** There may be differences in preparing formats other than DDP or CMF in various programs. The image in the NeroBurning ROM ver.X may be different from the one in MagicISO ver.Y program. Therefore, it is recommended to use programs created by designers of a particular format. TAKT is not responsible for errors made during preparation of these kinds of images. The various formats of the same images cannot be read by TAKT and cannot be the subject of a complaint.

#### 4.2 OTHER MEDIA – PenDrive, HDD USB

- PenDrive and HDD USB are acceptable media for masters submissions.
- Each electronic image must be accompanied by a checksum. The checksum preparation manual is in Annex 1.
- To create a stamper, the following image file formats are suitable.

**Table No. 2**

Product	Preferred File Format
CD-AUDIO	DDP 1.x, DDP 2.x, CMF 1.x
CD-AUDIO + CD-TEXT	DDP 1.x, DDP 2.x, CMF 1.x
CD-ROM	DDP 1.x, DDP 2.x, CMF 1.x
CD-VIDEO	DDP 1.x, DDP 2.x, CMF 1.x
DVD-AUDIO	DDP 2.x, CMF 1.x
DVD-VIDEO	DDP 2.x, CMF 1.x
DVD-ROM	DDP 2.x, CMF 1.x
DVD-VIDEO + ROM	DDP 2.x, CMF 1.x
DEPENDING ON THE DISC FORMAT *(excluding DVD9 VIDEO)	BIN + CUE, IMG, ISO, NRG

- If this is agreed with a sales person of TAKT, BIN, IMG, ISO, MDS and NRG formats are also accepted (excluding DVD9 VIDEO) for an extra fee of EURO 10.

**NOTE:** There may be differences in preparing formats other than DDP or CMF in various programs. The image in the NeroBurning ROM ver.X may be different from the one in MagicISO ver.Y program. Therefore, it is recommended to

use programs created by designers of a particular format. TAKT is not responsible for errors made during preparation of these kinds of images. The various formats of the same images cannot be read by TAKT and cannot be the subject of a complaint.

#### 4.3. CD - RECORDABLE/ DVD – RECORDABLE

##### CD-R

- All masters provided in CD R format should be edited exactly (1:1 replica) as expected in the final product.
- The master image can be submitted in DDP formats on a CD-R. The image should not be compressed. The image should be burnt to the disc's main sector.
- Just one DDP image can be burnt on a CD-R.

##### DVD-R, DVD-R DL

- All masters provided in CD R format should be edited exactly (1:1 replica) as expected in the final product.
- The master image can be submitted in DDP formats on a CD-R. The image should not be compressed. The image should be burnt to the disc's main sector.
- DVD-R DL is an acceptable medium for DVD 9 production. DVD-R DL's should be edited exactly (1:1 replica) as expected in the final product.
- 2 DVD-R 's are likewise acceptable for DVD9 masters. The first disc should contain an L0layer DDP image; the second, an L1 DDP layer DDP image. Masters sent this way must be labeled as such (L0 and L1).

#### 4.4 CD or DVD REPLICAS (a CD- or DVD- ready disc)

- Replicas can be used as masters provided they are not copy-protected.
- The master should be prepared the same way as described above - CD-R, DVD-R, DVD-DL.

#### 4.5 DLT tapes (not recommended)

- A DLT type IV tape may be used as a master.
- For DVD-9, a master of each layer (L0/L1) must be provided on a separate DLT tape.
- Each DLT tape must be labeled as such (L0 for Layer 0, L1 for Layer 1).

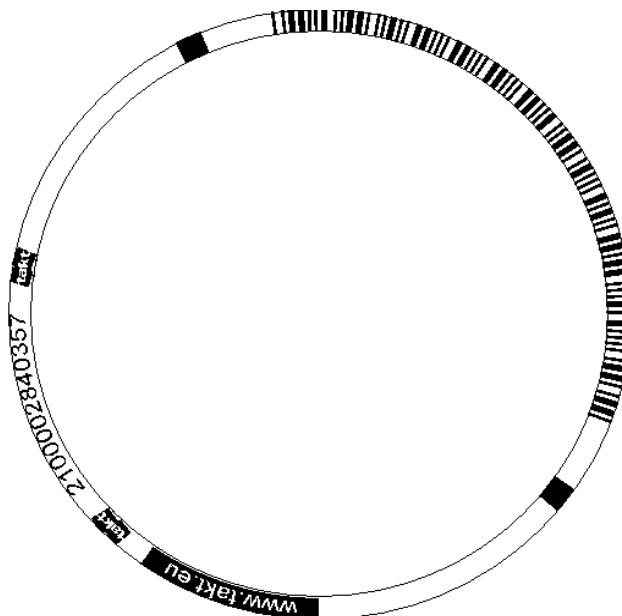
#### 4.6 Exabyte (not recommended)

- Exabyte 8 mm. tape may be used as a master.

### 5. CD and DVD stacking ring specification

The number of marks on a stacking ring cannot exceed 25. The standard used in TAKT includes the barcode (a 13 digits EAN CODE) as well as TAKT's logo and website.

## Chart No. 1.



The standard stacking ring of TAKT's replicas.

The barcode always appears on each disc and cannot be removed.  
TAKT's logo and website address may be removed upon client request.

### RINGS:

- The standard ring includes the BARCODE, the LOGO and TAKT's website address ([www.takt.eu](http://www.takt.eu))
- A barcode-only ring does not include the logo or web address. The client can additionally place up to 25 characters (no local characters are accepted)

For more information please contact your customer service representative.

## 6. Helpful WWW addresses

To generate MD5 checksums:

Md5summer - <http://www.md5summer.org/> -- recommended, described in Checksum Generation Manual

WinMD5Sum - <http://www.nullriver.com/index/products/winmd5sum>

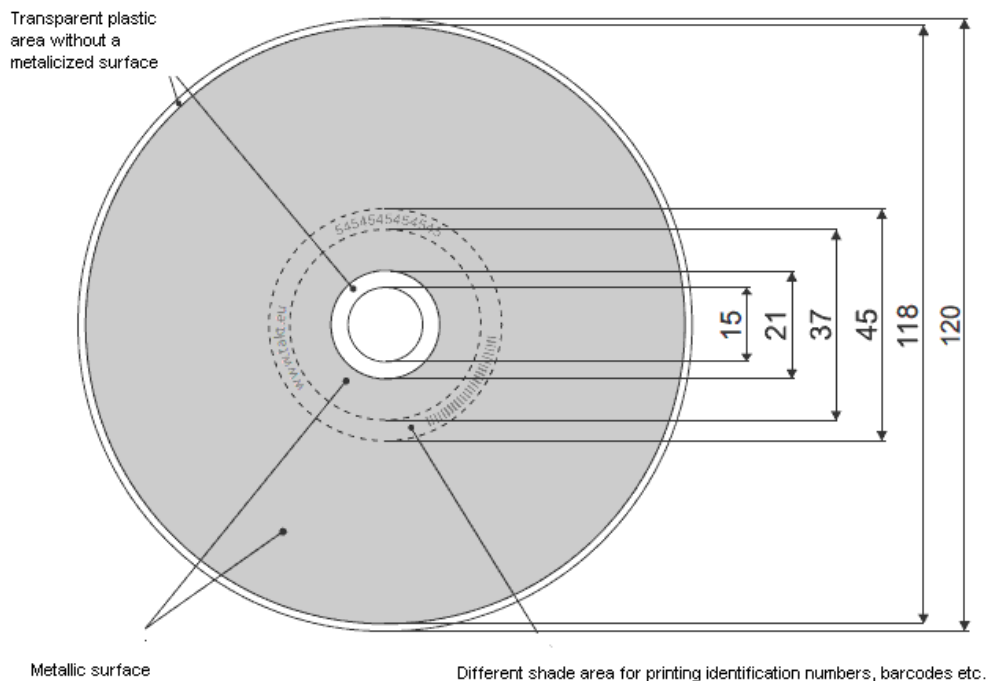
wxChecksum - [http://wxchecksums.sourceforge.net/mainpage\\_en.html](http://wxchecksums.sourceforge.net/mainpage_en.html)



## 8. CD-ROM SPECIFICATION

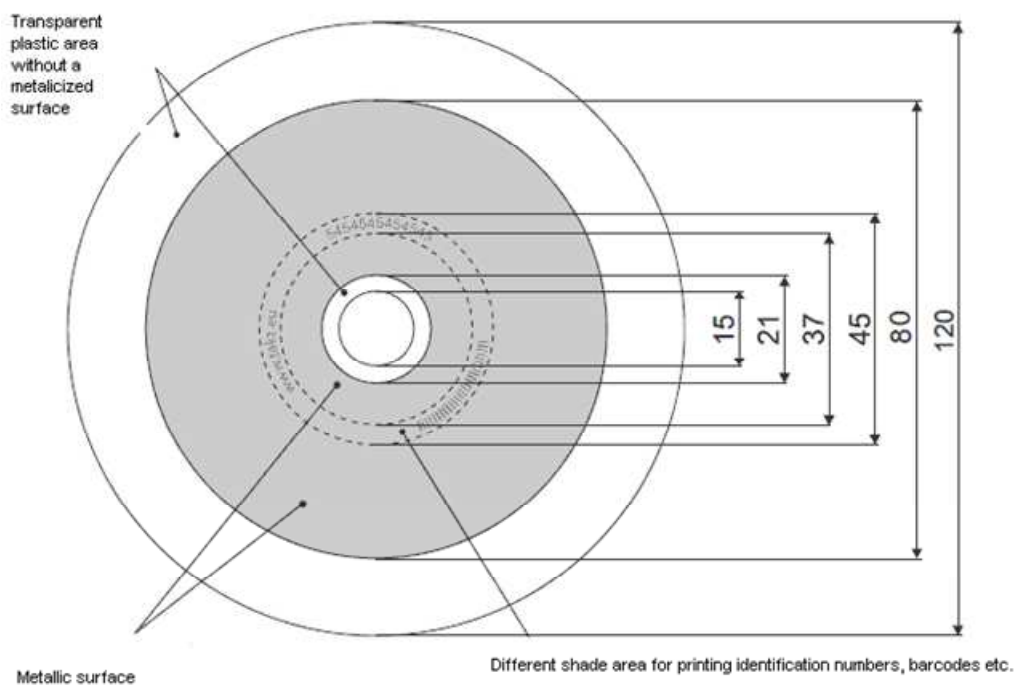
### Chart No. 3.

#### Standard coating



### Chart No. 4.

#### 80 mm coating



## Basic technical parameters

The Yellow Book specifies the technical parameters of the CD-ROM. The most important attributes are listed below:

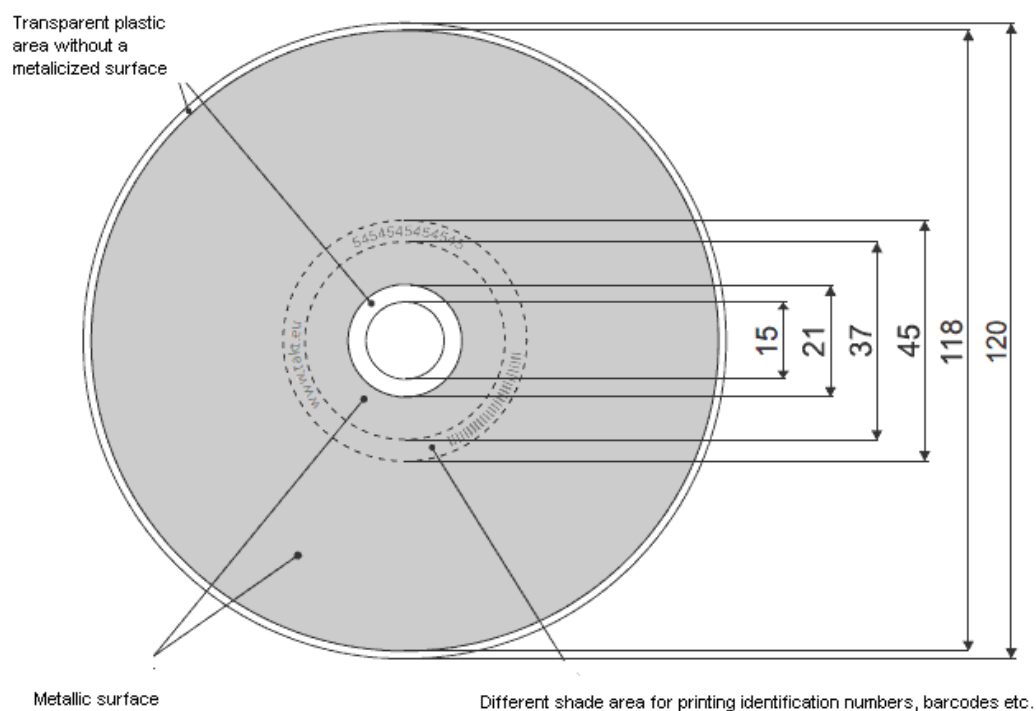
**Table No. 3.**

	PARAMETER	VALUE	NOTES
1	Data capacity	682 MB	74 minutes
2	RAW data bit rate	1.41 Mb/s	All bytes
3	User data rate	150 Kb/s	Normal speed
4	Section capacity	2352 bytes	
5	Application data/section	2048 bytes full error correction	
6	Sector rate	75 sect/s	Normal speed
7	Sector modes	1 or 2	
8	Sector forms	1 or 2	Applies in Mode2 only

## 9. CD-AUDIO SPECIFICATION

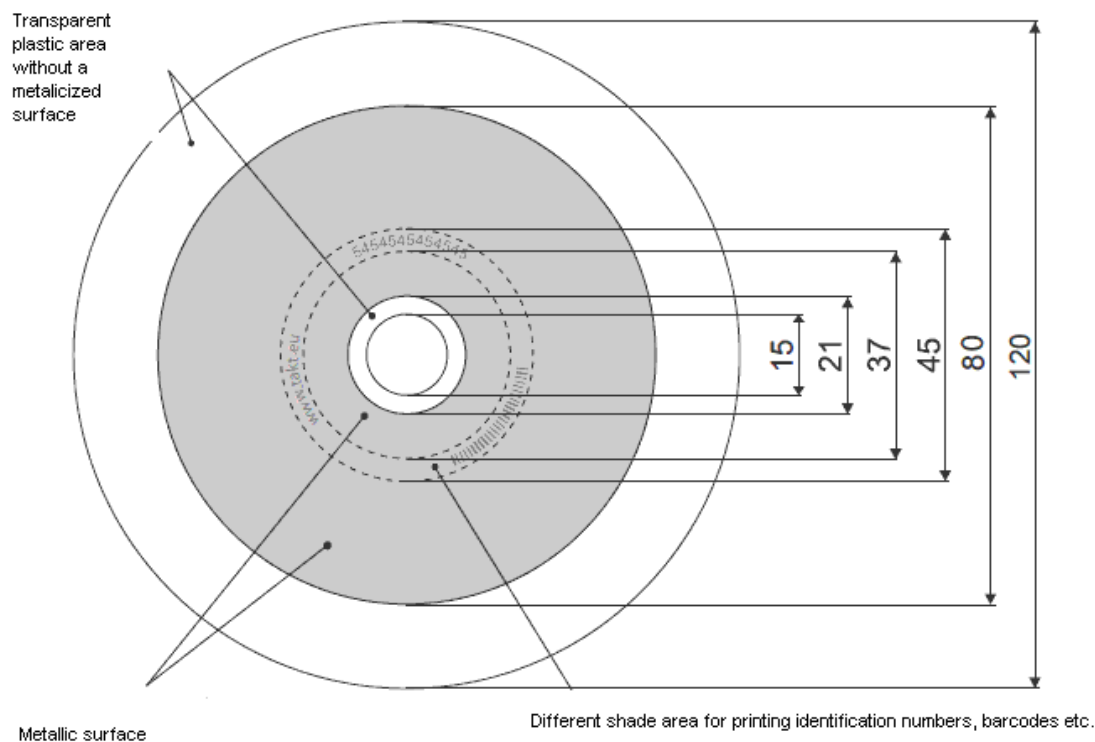
**Chart No. 5.**

### Standard coating





**Chart No. 6.**  
**80 mm coating**

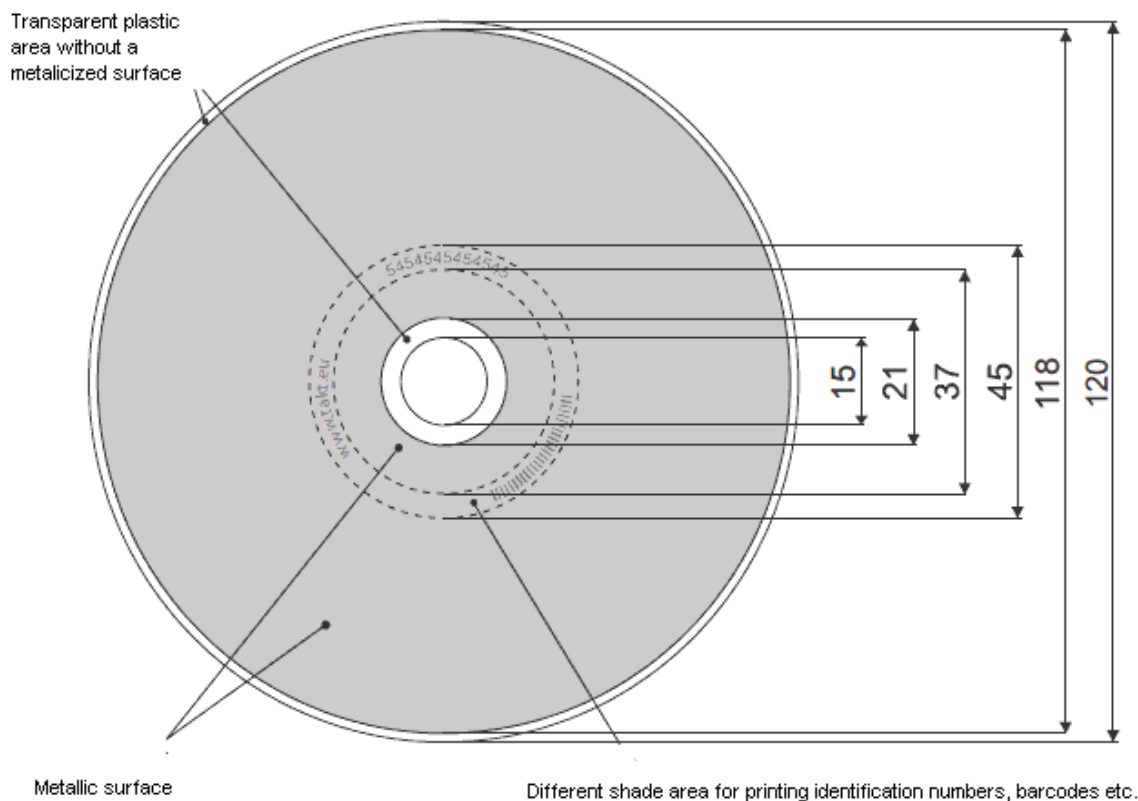


**Table No. 4**  
**Basic technical parameters**

Lp.	PARAMETR	VALUE	NOTES
1	Disc diameter	120 mm	-
2	Disc thickness	1,2 mm	Tolerance +0.3 mm / -0.1 mm
3	Duration	74 min, 44 s.	* see below
4	Number of tracks	Max. 99	** see below

## 10. DVD REPLICA SPECIFICATION

**Chart No. 6.**  
**Standard coating**



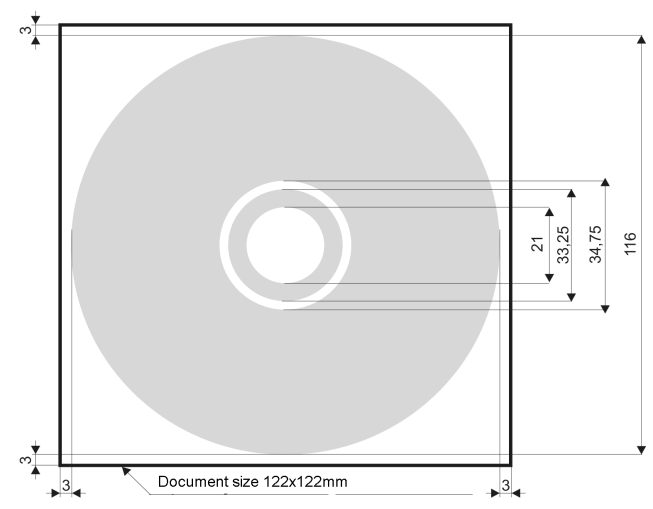
**Table No. 5**  
**Basic technical parameters**

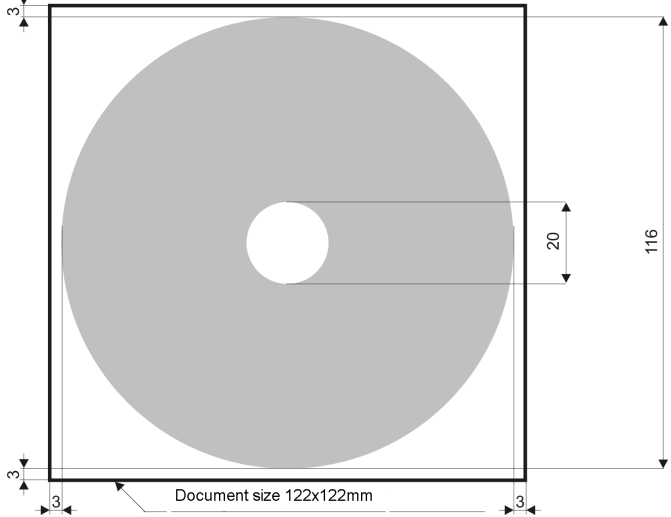
	Parameters	DVD-5	DVD-9	DVD-10
1	Disc diameter	120 mm	120 mm	120 mm
2	Disc thickness	1.2 mm	1.2 mm	1.2 mm
3	Number of sides	1	1	2
4	Number of layers	1	2	1
5	Inner diameter	15 mm	15 mm	15 mm
6	Capacity	4.7 GB max. 2,298,496 sectors	8.54 GB max. 2,084,960 sectors per 1 layer	2 x 4.7 GB max. 2x 2,298,496 sectors

More information regarding technical details are included in DVD Specification Guidebook DVD FLLC.

**PRINT SPECIFICATION**

**I. OFFSET PRINTING**

	DISC TYPE	DISC'S SIZES	PRINT FORMAT	TOLERANCE	COLOR ATTRIBUTES	OTHERS	PRINT FORMAT
1.	CD	<p>Outside diameter 120 mm.</p> <p>Inside diameter 15 mm.</p>	<p>Outside diameter max. 116 mm.</p> <p>Inside diameter min. 21 mm.</p> <p>Nothing may be printed in the area between 33,25 mm and 34,75 mm</p>	<p>Permissible color offset displacement between 0,01mm and 0,10 mm</p> <p>The print diameter may be up to 1 mm larger/ smaller</p>	<p>Raster should be density 175 lpi</p> <p>The range of printable color saturation is between 1% and 99%</p>	<ol style="list-style-type: none"> <li>1. Trapping is necessary for image and line elements</li> <li>2. While designing labels without use of a white background or with only a partial white background, coating specifications must be consulted.</li> <li>3. A range of coating surfaces between 45 – 37 mm must be considered while designing labels</li> </ol>	 <p>The diagram shows a CD centered on a 122x122mm document. The CD has an outer diameter of 116mm and an inner diameter of 21mm. A 3mm margin is shown on all four sides of the CD within the document frame. The area between 33.25mm and 34.75mm from the center is marked as a no-print zone.</p>

2.	<b>DVD 5/9</b>	<p>Outside diameter 120 mm.</p> <p>Inside diameter 15 mm.</p>	<p>Outside diameter max. 116 mm.</p> <p>Inside diameter min. 20 mm</p>	<p>Permissible color offset displacement between 0.01mm and to 0.10 mm</p> <p>The print diameter may be up to 1 mm larger/ smaller</p>	<p>Raster should be density 175 lpi</p> <p>The range of printable color saturation is between 1% and 99%</p>	<ol style="list-style-type: none"> <li>1. Trapping is necessary for image and line elements</li> <li>2. While designing labels without use of a white background or with only a partial white background, coating specifications must be consulted</li> <li>3. A range of coating surfaces between 45 – 37 mm must be considered while designing labels</li> <li>4. A white background is recommended. Coloring may be changed in projects without a white background</li> </ol>	
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### **3. OFFSET PRINT SPECIFICATION – ADDITIONAL INFORMATION**

#### **3.1. LABEL AND PRINT MATERIAL PREPARATION**

- Digital materials should be transmitted to the FTP server - a person from the sales office provides access parameters.
- TAKT accepts label data only in the following electronic formats:
- Composite PDF
- EPS binary-coded
- Resolution (original size):
  - LineArt minimum 1200 dpi;
  - GrayScale minimum 600 dpi;
  - CMYK minimum 300 dpi.
- All image must be supplied as CMYK. Conversion from RGB may cause reduction of quality. Therefore, they will not be accepted.
- Fonts: All fonts must be included or converted to outlines. Incomplete fonts cause incorrect exposures.

#### **3.2. OPERATING SYSTEM :**

- MacOS X 10.5.XX and 10.8.XX

#### **3.3. GRAPHIC SOFTWARE:**

- Adobe InDesignCS5
- Adobe PhotoshopCS5
- Adobe IllustratorCS5
- Adobe AcrobatPro
- Acrobat Distiller9

#### **3.4. COLOR PROOFS**

- CMYK proofs are based on composite files, made according to the FOGRA 39 standard.
- PANTONE colors are referenced to the PANTONE ® pattern, values being compared to the proof.
- In the case of the acceptance of a print by the Client, at the TAKT printing house, the control sheet which has been accepted and signed by the customer becomes a master material for the operator of the printing machine.
- Prints from previous editions are not contract proofs, they can only be a reference point for the operator of the printing machine. The use of this type of master entails the possibility of obtaining different colors because of the lack of information concerning the materials preparation and the printing process.

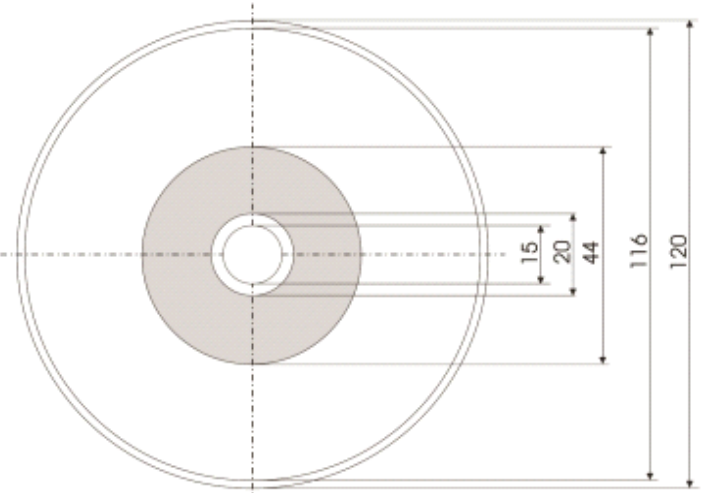
#### **3.5. COLORS**

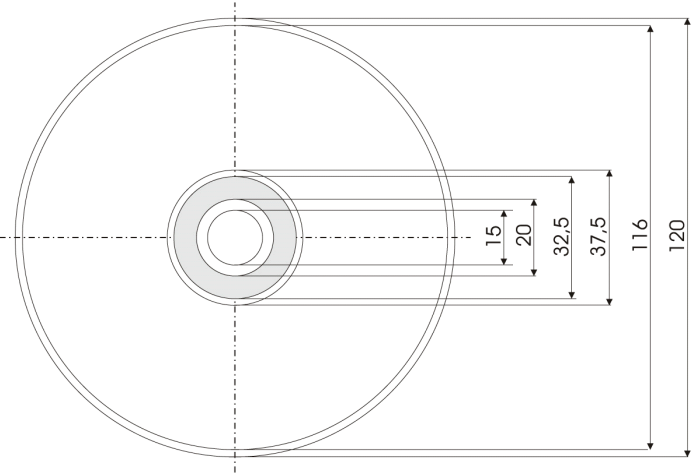
- Offset CMYK print is applied directly on a disc's surface or on a white pre-print (background)
- Additional Pantone color or varnish may be added to a project
- Black areas in offset printing must be underlaid with CYAN 80%, MAGENTA 80%, YELLOW 80%

### 3.6. TEXT - MINIMUM TYPE SIZE

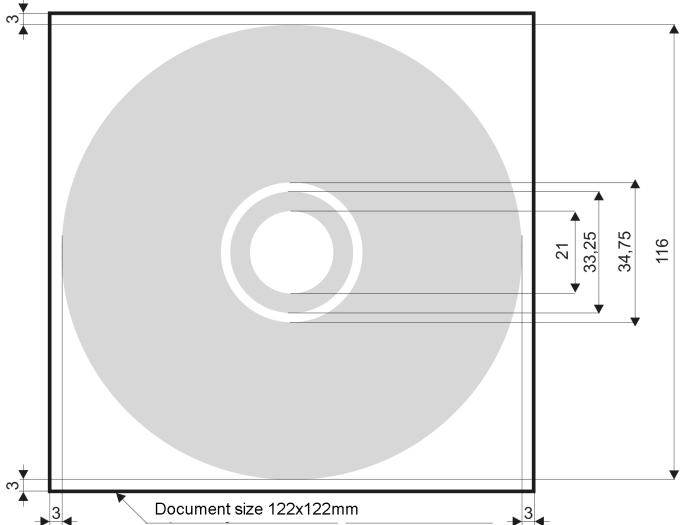
- Sans-serif fonts
  - for positive 4,5 point
  - for negative 5 point
- Serif fonts:
  - for positive 5,5 point
  - for negative 6 point

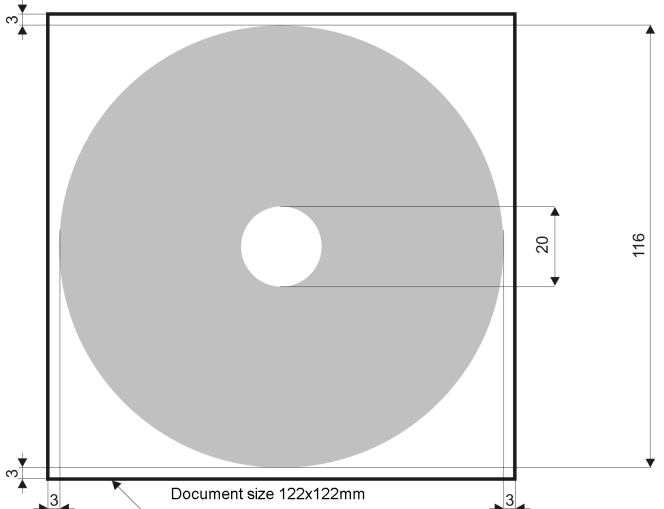
## II. SILKSCREEN PRINTING

Lp.	DISC TYPE	DISC'S SIZES	PRINT FORMAT	TOLERANCE	COLOR ATTRIBUTES	OTHERS	PRINT FORMAT
4.	<b>DVD10 1 side label</b>	<p>Outside diameter 120 mm.</p> <p>Inside diameter 15 mm.</p>	<p>Outside diameter max. 44mm.</p> <p>Inside diameter min. 20 mm</p>	<p>Permissible color offset displacement between 0.01mm and to 0.10 mm.</p> <p>The print diameter may be up to 1 mm larger/ smaller</p>	<p>Raster's density should be 133 lpi</p> <p>The range of printable color saturation is between 15% and 90%</p> <p>A gradient is not possible</p>	<p>Trapping is necessary for image and line elements</p> <p>While designing labels without use of a white background or with only a partial white background, coating specifications must be consulted</p> <p>A range of coating surfaces between 45 – 37 mm must be considered while designing labels</p> <p>A white background is recommended. Coloring may be changed in projects without a white background.</p>	

Lp.	DISC TYPE	DISC'S SIZES	PRINT FORMAT	TOLERANCE	COLOR ATTRIBUTES	OTHERS	PRINT FORMAT
5.	<b>DVD10 2 sides label</b>	Outside diameter 120 mm.  Inside diameter 15 mm.	Outside diameter max. 32,5mm.  Inside diameter min. 20 mm	Permissible color offset displacement between 0.01mm and to 0.10 mm.  The print diameter may be up to 1 mm larger/ smaller	Raster's density should be 133 lpi  The range of printable color saturation is between 15% and 90%  A gradient is not possible	Trapping is necessary for image and line elements  While designing labels without use of a white background or with only a partial white background, coating specifications must be consulted.  A range of coating surfaces between 45 – 37 mm must be considered while designing labels  A white base is recommended. Coloring may be changed in projects without a white background	



Lp.	DISC TYPE	DISC'S SIZES	PRINT FORMAT	TOLERANCE	COLOR ATTRIBUTES	OTHERS	PRINT FORMAT
6.	CD	Outsider diameter 120 mm.  Inside diameter 15 mm.	Outside diameter max. 116 mm.  Inside diameter min. 21 mm.  Nothing may be printed in the area between 33,25 mm and 34,75 mm	Permissible color displacement between 0.01mm and to 0.10 mm.  The print diameter may be up to 1 mm larger/ smaller	Raster should be density 133 lpi The range of printable color saturation is between 15% and 90%  A gradient is not possible	Trapping is necessary for image and line elements.  While designing labels without use of a white background or with only a partial white background, coating specifications must be consulted.  A range of coating surfaces between 45 – 37 mm must be considered while designing labels	 <p>The diagram shows a CD with a square label area. The document size is 122x122mm. The CD's outer diameter is 116mm and its inner diameter is 15mm. The label area is defined by a square with a side length of 116mm. The center of the CD is offset from the center of the label area. The offset dimensions are: 3mm from the top and bottom edges of the label area to the center of the CD, and 3mm from the left and right edges of the label area to the center of the CD. The inner diameter of the CD is 15mm. The distance from the center of the CD to the inner edge of the label area is 21mm. The distance from the center of the CD to the outer edge of the label area is 33,25mm. The distance from the center of the CD to the outer edge of the CD is 34,75mm.</p>

Lp.	DISC TYPE	DISC'S SIZES	PRINT FORMAT	TOLERANCE	COLOR ATTRIBUTES	OTHERS	PRINT FORMAT
7.	DVD 5/9	Outsider diameter 120 mm.  Inside diameter 15 mm	Outside diameter max. 116 mm.  Inside diameter min. 20 mm	Permissible color displacement between 0.01mm and to 0.10 mm.  The print diameter may be up to 1 mm larger/ smaller	Raster should be density 133 lpi  The range of printable color saturation is between 15% and 90%  A gradient is not possible	Trapping is necessary for image and line elements.  While designing labels without use of a white background or with only a partial white background, coating specifications must be consulted.  A range of coating surfaces between 45 – 37 mm must be considered while designing labels	 <p>The diagram shows a DVD disc centered within a square frame representing the document size. The document size is 122x122mm. The disc has an outer diameter of 120mm and an inner diameter of 15mm. A central hole has a diameter of 20mm. There are 3mm margins on all sides of the disc within the document frame.</p>

## 8. SILKSCREEN PRINT SPECIFICATION– ADDITIONAL INFORMATION

### 8.1. LABEL AND PRINT MATERIAL PREPARATION

- Digital materials should be transmitted to the FTP server - a person from the sales office provided access parameters
- TAKT accepts label data only in the following electronic formats:
- Composite PDF
- EPS binary-coded
- Resolution (original size):
  - LineArt minimum 1200 dpi;
  - GrayScale minimum 600 dpi;
  - CMYK minimum 300 dpi.
- All images must be supplied as CMYK. The conversion from RGB may cause reduction of quality. Therefore, they will not be accepted.
- Fonts:
  - All fonts included must be converted to outlines. Incomplete fonts cause incorrect exposures.
  - Fonts transferred via the internet should be zipped or compressed using Stuffit

### 8.2. OPERATING SYSTEM :

- MacOS X 10.5.XX oraz 10.8.XX

### 8.3. GRAPHIC SOFTWARE:

- Adobe InDesignCS5
- Adobe PhotoshopCS5
- Adobe IllustratorCS5
- Adobe AcrobatPro
- Acrobat Distiller9

### 8.4. COLOR PROOFS

- CMYK proofs are based on composites made according to the FOGRA 39 standard.
- PANTONE colors are referenced to the PANTONE ® pattern, values being compared to the proof.
- In the case of the acceptance of a print by the client at the TAKT printing house, the control sheet which has been accepted and signed by the customer becomes a master material for the operator of the printing machine.
- Prints from previous editions are not contract proofs, they can only be a reference point for the operator of the printing machine. The use of this type of master entails the possibility of obtaining different colors because of the lack of information concerning the materials preparation and the printing process.
- There is the possibility of applying gloss/ matt varnish on a printed surface. If the sequence of colors is not determined, varnish will be applied as the last application.

### 8.5. COLORS

- From 1 to 6 colors (CMYK or Pantone) may be printed.
- Black areas do not have to be underlaid.

## 8.6. TEXT - MINIMUM TYPE SIZE

- Sans-serif fonts
  - for positive 4,5 point
  - for negative 5 point
- Serif fonts:
  - for positive 5,5 point
  - for negative 6 point

## 8.7. One and two sides label

- One side label is printed on side B
- Two sides label requires 2 labels "A" and "B"
  - "A" label will be printed on B side
  - "B" label will be printed on A side