

Technical conditions for the manufacturing of vinyl records

Introduction

Vinyl records are mechanically manufactured analogue mediums of sound storage. The sound and dimensional parameters are according to the 3rd edition of the standard IEC 98, published in 1987.

1 Types of manufactured vinyl

Vinyl records are classified into the following categories, according to the combination of playback speed and diameter:

Vinyl type	Nominal diameter		Revolutions per minute	Designated marking in matrix number
	Inch (")	cm		
LP	12	30	33 ¹ / ₃	E
MP	10	25	33 ¹ / ₃	F
SP	7	17,5	45	H
Maxisingle	12	30	45	M
Maxisingle	10	25	45	N
EP	7	17,5	33 ¹ / ₃	O

In addition to the above mentioned products, there are also different types of records which differ in weight (standard and "heavy"), colored, designer labels (picture disc) or shape (shaped vinyl). These records may not conform to the standard specifications published in IEC 98.

1.1 Recording times and choice of vinyl records

Each side of a record carries a physically continuous spiral groove with 2 channels (stereo). The groove begins at the edge of the record and ends within a specified diameter from the centre, where the groove closes within itself. Any request involving a different geometrical groove order needs to be specifically defined as a planned deviation from the IEC 98 norm.

The recording time available on vinyl records depends on the frequency spectrum, dynamics, width of the stereo image and other characteristics of the recording.

The playback times mentioned here are for orientation only. If the playing time per side does not exceed the timings mentioned, the cutting level is usually only limited according to the parameters of the cutting machine and playback conditions. If the playing time is longer than the recommended times in the table, it is possible that the signal requested to be cut could exceed the recording area. In this case, it is necessary to lower the cutting level or to choose a suitable compromise.

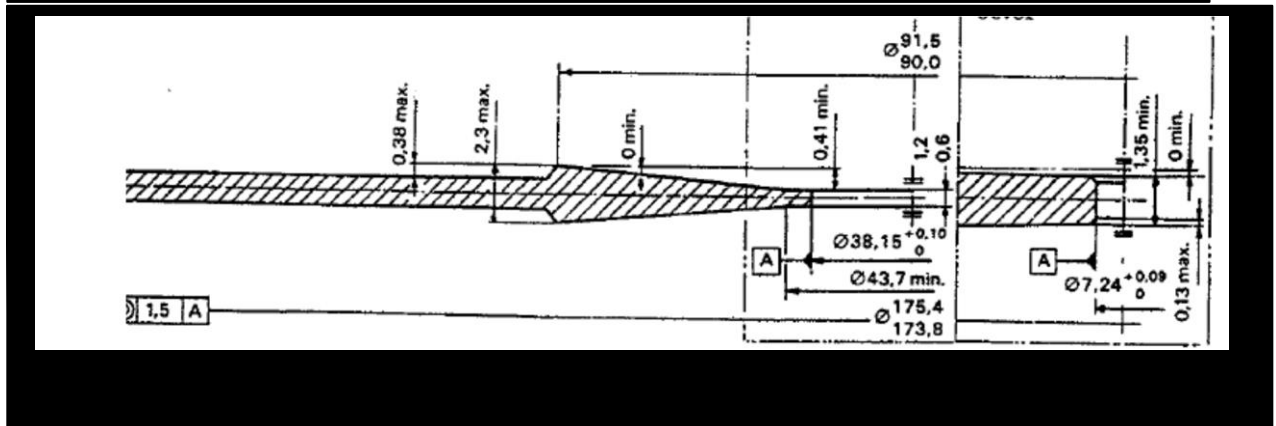
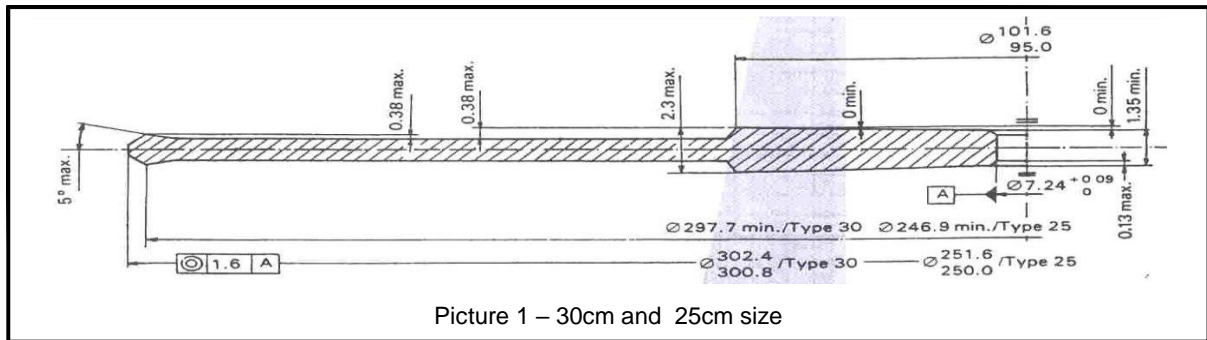
Suggested maximum playing times (min.)		
Vinyl diameter	33 1/3 RPM	45 RPM
7"	6,5	5,0
10"	13,5	10,0
12"	19,5	14,5

For a more clear orientation between the track markings, it is possible to cut a transmission groove, keeping in mind that this transmission groove decreases the recordable area of the medium.

When selecting the desired vinyl format, it is important to not only take the playback time into consideration, but also the physical principles of playback as well. Based on this, the worst suitable format would be a 7" EP cut at 33 1/3 RPM (which we don't recommend, because this particular format has the lowest circumference speed during playback in the centre area of the record).

1.2 Geometric parameters of vinyl records

The measurements of vinyl records are based on the IEC 98 norm. Vinyl record dimensions of 12", 10" and 7" are valid for standard weight vinyl in the diagrams below.



Other parameters not included in these figures are:

1. Flatness of phonographic records:

Records may not show an extreme warping. The warping may not influence a continuous replaying on a record player.

For nonstandard records where there is used only one label or for Picture Disk Shaped records, where the label is printed from both sides, warping will always be present.

Warping can't prevent continuous play of the record.

2. Eccentricity of the spiral groove cannot be more than 0,2mm

The dimensions and flatness parameters for the records mentioned above are not valid for heavyweight vinyl, picture discs or shaped vinyl. Further specifications can be found in the information concerning the specific format.

1.3 Heavyweight vinyl

Records with a diameter of 7" and 12" are manufactured in 2 different weight classes: "standard" and "heavy". Records with a diameter of 10" are manufactured in a standard weight only.

Diameter	Standard weight	Heavy weight
7"	42g	70g *
10"	110g	Not produced
12"	140g	180g
12"PD	155g	195g

*)Records can be produced with large hole, but there is a high risk of damage to the label due to die-cutting of the central hole.

All types of records and weights are within a tolerance of $\pm 10g$, apart from 7" standard weight, which has a tolerance of $\pm 7g$.

The weights mentioned above are not valid for picture discs and shaped vinyl. Weights for these types of special records are determined according to the technological parameter settings.

1.4 Coloured vinyl

Vinyl records are manufactured in standard black as well as single or multicolour configurations, according to the customers' wishes.

1.4.1 Single coloured vinyl

The manufacturing of single coloured records is carried out according to the colour swatch from the manufacturer. The sample swatch contains 14 different colours which are defined according to numbered values of the Pantone (Pantone Formula Guide Solid Coated & Solid Uncoated) chart. Six of the colours which we offer are transparent and eight are solid colours. Coloured records are manufactured within a 1 degree deviation tolerance from the Pantone colour selected.

In our standard offering, there are 6 neon colours, in accordance to the Pantone Chart.

If the customer requests a colour that is not on our standard colour swatch, we can attempt to manufacture the colour (colour match) if the reference number from the Pantone (Pantone Formula Guide Solid Coated) chart is provided. In the case of custom colours (colour matching), the manufacturer reserves the right to firstly verify that the colour can be mixed for vinyl production. In the case that production of the selected colour is possible, the records can be manufactured with a 2 degree deviation tolerance from the Pantone colour selected.

All coloured vinyl which is manufactured with an opaque (solid) coloured (including metallic inks) base contains a mineral pigment or metal powder which can impair the acoustic properties of the record (causing a possible light crackling surface noise). These defects cannot be subject to claim. Likewise, the inferior acoustic properties (light crackling) on Ultra Clear coloured vinyl can also not be subject to claim.

Colour deviations that are less than two, respectively one degree of deviation from the Pantone chart (see above) cannot be subject to claim. Claims against spots where the surface area of the spot does not exceed 0.01% of the total area for compact stains, solid spots where the colour is significantly different from the rest of the vinyl and 0.5% of the total area for spots (marks) which are not solid or uniform and may have a hazy character or spots formed of an equal hue but with a different intensity cannot be accepted.

We evaluate the entire area of the vinyl as a reference (including labels) when investigating claims against coloured records. The coverage of spots/stains are calculated as a whole and may not exceed the values mentioned above.

There are specific metallic single coloured records gold, bronze and silver. The pigment composition causes uneven spillage of a colour, especially in the area without recording, resulting in coloured "waves" on a vinyl record – a relief with a different colour shade. This effect doesn't influence the recording/sound quality (lead-in groove, lead-out groove, mirror). These characteristics cannot be subject to claim.

1.4.2 Multicoloured vinyl

Manufacturing of multi-coloured records is carried out by mixing the individual coloured raw material prior to the pressing of the records. The appearance of each individual record will be different and can deviate from the desired end effect. Two-colour combinations of black with transparent colours will not yield a good result, due to the loss of colour effects. Transparent colours mixed with black, for example, will be completely absorbed and not visible whatsoever.

Claims against multicolour combinations are investigated according to similar conditions as with single coloured records in respect to deviations from the colour swatches, noise and crackles on opaque coloured records with metallic pigments and Ultra Clear vinyl.

Claims against deviation from the desired colour design chart, such as an uneven colour representation on splatter vinyl or differing representations of colours for multicolour combinations of two different records produced in the same pressing run cannot be accepted.

In case the customer is requesting the same effect as was used for the original production for example, physical sample is mandatory, which will be used as a standard for the pressing.

If the physical sample is not provided, the pressing will be done according to the processing standard and differences in the effect from the request of the customer cannot be the subject of any claim

We offer following options:

1.4.2.1 Splatter vinyl

When using more splatter colours it cannot be guaranteed that all of them will be visible. Black colour and dark solid colour used as a base colour absorb splatter colours. The result is splatters are less visible. Furthermore when using solid colours as a base colour combined with transparent splatter colours the final effect may be less visible. We recommend using of transparent colours as a base to achieve a higher contrast. The amount of splatters cannot be defined. Splatters cannot be used on 7" heavy vinyl records.

For some records, there can be a taints on the label in overall acceptable area of and if they do not prevent the readability of the text, they are acceptable and cannot be subject of a claim process.

1.4.2.2 Hazed vinyl

The recommended combination is a transparent base colour – the final effect is more visible. Hazed vinyl records surface is contaminated with a powder. This cannot be subject to claim. Silkscreen printing cannot be applied on hazed vinyl records.

1.4.2.3 A side/B side vinyl

The recommend combination is to use a solid colour and a contrast colour. When using a dark solid colour and a light transparent color the vinyl effect will be less visible.

1.4.2.5 Colour in colour vinyl

The record is pressed as a small vinyl biscuit into a large vinyl biscuit. When using a small solid vinyl biscuit and a large transparent vinyl biscuit the colours will be bounded. We recommend to use contrast colours, preferably a large vinyl biscuit of a light transparent colour and a small vinyl biscuit of a solid dark colour. It cannot be used reversely. In case both of the vinyl biscuits are solid the final effect is random, colours are penetrated and the final effect is rather A side / B side effect.

1.4.2.5 3 colour vinyl - segments

Both transparent and solid colours can be used and combined. In place of the colours connection, there is a risk of label wrinkling, as well as one colour contaminating the other. This cannot be subject to claim as far as the label is not torn or illegible.

1.4.2.6 3 colour vinyl - stripes

Both transparent and solid colours can be used and combined. In place of the colours connection, there is a risk of label wrinkling, as well as the colors flooding together. This cannot be subject to claim as far as the label is not torn or illegible.

1.4.2.7 Half / Half

Both transparent and solid colours can be used and combined. In place of the colours connection, there is a risk of label wrinkling, as well as one colour contaminating the other. This cannot be subject to claim as far as the label is not torn or illegible.

1.4.2.8 Quad Effect

Both transparent and solid colours can be used and combined. In place of the colours connection, there is a risk of label wrinkling, as well as one colour contaminating the other. This cannot be subject to claim as far as the label is not torn or illegible.

1.4.2.9 Cornetto Effect

Cornetto effect produces so called rays. There can be on the base color 3, 4, 5, or 6 rays. We recommend using combination of two transparent or two solid colours (for two solid colours the effect will be more noticeable on the side A and on side B rays will be less profound). In case solid colour is used as a base and transparent one is used for rays, the effect won't be visible enough on either side

1.4.2.10 3 colour vinyl – A side/B side

Both transparent and solid colours can be used. The sequence of colours is indicated by the order of the pucks in relation to the side (the upper puck is on the outer rim of the record, the bottom puck is on the inner rim of the record.)

1.4.2.11 Twister Effect

Twister is produced by using 3 colours – its production is complicated, mainly due to need of splitting the pucks into segments. Colour is These are always symmetrical and are mirroring each other. The colour effect is random. Colour rays are more profound in relation to the side of the vinyl (upper one is more profound on side A, bottom one on the side B). Size of the middle segments depends on the combination of transparent and solid colours. If the basic color is solid and rays are transparent, the effect won't be visible enough on both sides. This cannot be subject of a claim.

1.4.2.12 Cloudy Effect

Cloudy effect is transparent and creates impression of a veil or a cloudy sky. Record is comprised of three colours – one basic one and two supplementary ones. The basic colour needs to be either Clear or Ultraclear. Supplementary colours dictate the colour of the record itself and they need to be the same colour to achieve the chosen effect.

1.4.2.13 Galaxy Effect

The effect is comprised of either two or three colours and is similar to Marble effect. Both transparent and solid colour can be used. Effect will be mostly noticeable against a direct light in case transparent colours are used.

1.4.2.14 Spinner Effect

Basic colour is mandatory to be transparent, the colour that will create the effect has to be only and in contrast to the basic colour for the effect to be visible. Spinner effect can have splatter, but only two colours of them.

1.4.2.15 Triple Button Effect

Basic color is transparent, the colour that will create the effect has to be only and in contrast to the basic colour for the effect to be visible. Triple button effect cannot have splatters.

1.4.2.16 Moon Phase Effect

Basic colour is mandatory to be transparent, the colour that will create the effect has to be only and in contrast to the basic colour for the effect to be visible. Spinner effect can have splatter, but only two colours of them.

1.4.2.17 Butterfly Effect

Basic colour is mandatory to be transparent, the colour that will create the effect has to be only and in contrast to the basic colour for the effect to be visible. Spinner effect can have splatter, but only two colours of them.

1.4.2.18 EKO MIX

This is a random effect created by a random mix of colours. Vinyl records can be significantly different in final color effect. The colour finish cannot be subject to claim.

1.4.2.19 Marble effect

This is an effect with a marbling on a vinyl record. The base colour must be light transparent, the marbling colour must be dark solid colour, preferably black.

1.4.2.10 Glow in the dark

Records are glowing in the dark. The vinyl records are manufactured from a vinyl compound with ingredient of a special pigment. There are three pigments available – blue, green and red pigment. The base vinyl color can be clear or ultra-clear colour.

1.5 PICTURE DISC (PD)

Picture discs are vinyl records which have a printed label on both sides (covering the entire surface area) with a plastic foil covering the entire surface area and grooves pressed into the plastic.

In the case that a one sided picture disc is requested, only one side of the picture disc will be cut. The other side cannot be "mirrored" (smooth surface with no recording), but there must be a "silent groove" (groove without signal).

There are two PD labels used. In the case that an exact orientation is requested it must be specified on the purchase order (e. g. head to head).

In the unusual case that a single sided picture disc is requested, the label is usually printed from both sides and the recording is pressed on one side of the record, covered by a plastic foil. The vinyl compound used is usually transparent. The opposite side of the label is visible through the transparent vinyl material on the opposite side of the picture disc. These types of records usually have deformed central holes, are prone to warping more than others and do not comply with the flatness parameters. Claims will only be accepted if the deviation is greater than 5mm for 10" and 12" vinyl or 3mm for 7" vinyl. The method of measuring picture discs is the same as with standard vinyl records.

7" PD records can be manufactured in a heavy weight only.

Picture discs may have defects in form of smudges (folded, wrinkled foil). As far as the text is legible and the label design is not significantly deformed this cannot be subject to claim.

Furthermore, due to the fact that the recording is pressed into a non-standard material for vinyl, picture discs may have deteriorated acoustic properties, for example, especially increased levels of noise and static. These degraded acoustic properties cannot be subject to claim.

Likewise, picture discs containing moiré cannot be subject to claim. This effect is caused due to the interference between the pressed grooves and printed label raster via offset printing with the CMYK colour model using a standard raster (175lpi).

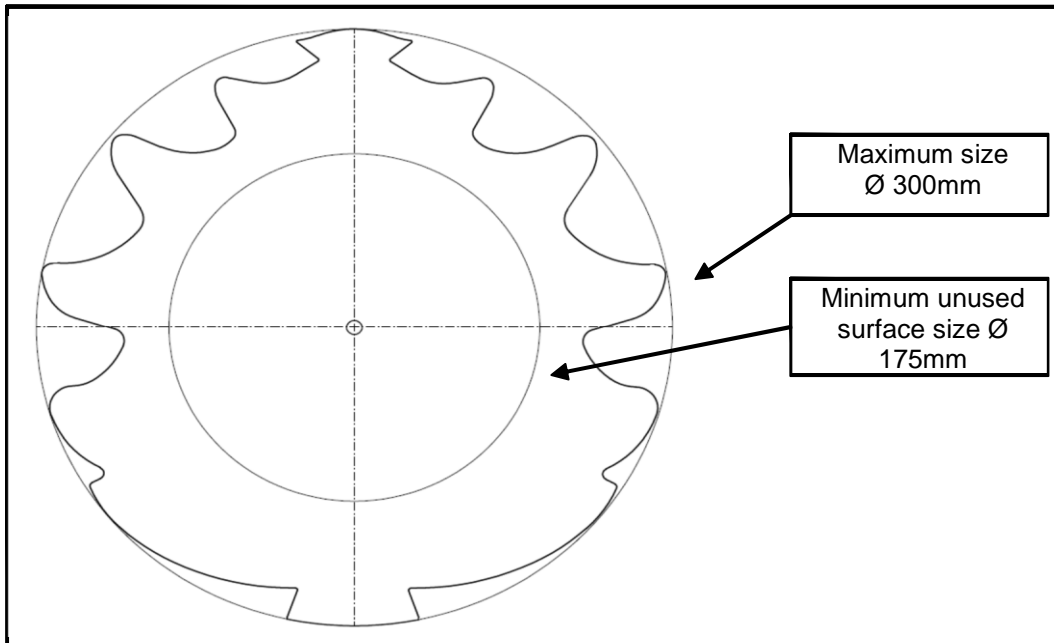
1.6 SHAPED VINYL

Shaped vinyl are records which are shaped into various geometric shapes using a cutting tool. The shapes are determined based on drawings or designs submitted by the customer. When a special shape is requested, it is important to choose a suitable format (either 12" or 10") due to the fact that the record has to have 175mm of recording area left in the centre of the vinyl (please refer to the diagram below). The raw material for shaped vinyl can either be standard black or coloured, in 10" or 12" format vinyl and as standard or heavyweight.

1.6.1 Shaped PD vinyl

In the case that a shaped picture disc is requested, the picture disc label must be by 2-3mm smaller than the requested final shape size. The only shaped picture disc option available is a one sided picture disc where warping always occur and flatness parameters are not met.

The shape of the PD label is limited. If the recording is on a small area around the vinyl centre only there should be a silent groove added to prevent from tearing the labels.



Please note that the same conditions apply for shaped picture discs as they do for standard ones (risk of moiré, warping on single sided picture discs, degraded acoustic quality).

Please also take into consideration that the playback area is usually considerably reduced when ordering shaped vinyl.

1.7 Test pressings

Test pressings (5-10 copies) can be manufactured upon request. Test pressings are pressed on basic black vinyl. The difference between test pressings and the full production (including picture discs) is that test pressings come with white center labels containing just sides' marking. Test pressings are sent to the customer for approval and are for checking and approving the acoustic quality of the record only (as well as any requested engravings). Claims against other defects will not be accepted. The approved sample is used as a standard for assessing the acoustic quality of the complete production. Test pressing for LP Vinyls are only produced in the Heavy variant – 180g. In case of order for higher volume of units than 3000 units it is mandatory for the Test pressing to be manufactured to prevent claims from the side of the customer.

1.8 Identification markings

Each side of the record is marked with a mandatory matrix number in the run-out area in the form of: **xxxxxxFS**. This code serves as an identification of the manufacturing. The first part of the matrix number is a series of six numbers **xxxxxx** which identifies the particular title. **F** is the symbol which indicates the format (see Table in chapter 1) and **S** indicates the side of the record or set, which determines the assignment of pressing tools to the individual sides of a particular title. There can also be other markings that are used for internal records only.

There is a possibility to engrave other characters on customer request, using the capital letters only. The maximum number of characters including spaces is 60. See appendix #2 for allowed characters.

1.9 Silkscreen and etched vinyl

The silkscreen vinyl can be manufactured in variants with a label and without a label; with a silkscreen print over the label or outside the label.

The graphic must be supplied as min. 300DPI (or bitmap min 1200DPI) or in vectors, using one colour i. e. 1/0 K or 1/0 PMS. When using a PMS colour we prefer data to be supplied as 1/0K with an exact PMS colour specification on a purchase order and in the file supplied. The graphic must be in accordance with GZ technical conditions for DTP.

An extra attention should be paid to a correct distinction between a positive and a negative (according to the base plate). The black graphic will be printed on a vinyl record using the requested colour. Bear in mind that there is the vinyl centre hole when preparing the graphic/artwork.

We recommend to use one label at least – on the side with a recording. In the case a silkscreen printed record without labels on both sides is requested we cannot guarantee the size of the centre hole will be kept. This cannot be subject to claim.

The record profile must be respected when printed. The area around the centre hole and on the small ring around the centre hole will not be printed.

Most of PMS colours are partially transparent therefore the final printing result cannot be exactly matched with the PMS sampler.

The etched picture cannot be combined with a recording. The etched picture can be with a label or without a label. The centre ring on the records is blank. The size of the displayed detail depends on the size of the etched area, respectively on the etched / non-etched area ratio. For guidance: if the ratio is higher than 0,5 the smallest detail possible is equal to a font size 18 and higher. If the ratio is smaller than 0,5 a detail equal to a font size 12 and higher can be displayed. The etched surface area is not gloss but matte and may show different shades. This cannot be subject to claim.

2 Material required for mastering

Limitation of Liability for damages: In the case the physical data medium is damaged or lost, GZ Media, a.s. will cover the price value of the new medium, but not the content.

The physical media must be readable throughout the length of the program. In the event that the supplied medium contains uncorrectable read errors, processing of the order(s) will be suspended and the customer will be requested to supply new data.

2.1 Input source format

Each data medium must be clearly identifiable in accordance with the supplied documentation and order (part number, customer, etc.). The description must also define exactly what is stored on the data carrier (e.g., vinyl master, CD-Audio DDP master or WAV files). The medium needs to be clearly labeled (both the packaging as well as the physical medium itself) according to the order. It must enable an error free reading (self-adhesive labels, labeling the medium with a hard tipped pen, etc., are unsuitable ways of labeling your masters).

If a single data medium includes files for more titles, the files must be stored in separate folders and named according to the catalog number of the title. They must match the information contained in the supplied documentation and order forms. We recommend storing the data for each side in separate subfolders.

Recommendation: We recommend only sending a copy of your original master for production. We also recommend sending 2 identical copies of your original master clearly labeled as the master + a backup copy. In the case of an unreadable master, we can use the backup copy to avoid any potential delays in the production process caused by sending a new master.

2.1.1 Audio files

Audio files can be supplied on physical media or uploaded via FTP. Audio files cannot be used as they are supplied for direct cutting. This is why the data is first examined to determine if it would be suitable for vinyl master cutting. According to the documentation supplied, the tracks will be split according to the sides of the record and, if necessary, corrective actions to improve sound quality will be made.

2.1.1.1 Recommended formats:

- WAV (Windows PCM) - uncompressed audio
- AIF, AIFF (Apple Macintosh) - uncompressed audio
- APE (Monkey's Audio) - lossless compression, including error detection
- FLAC (Free Lossless Audio Codec) - lossless compression, including error detection

Bit resolution: accepted 16, 20, 24 a 32 bit.

Sampling frequency: accepted 44.1, 48, 88.2, 96, 176.4 and 192 kHz.

We generally do not resample files with a sampling frequency higher than 44.1 kHz - only in cases when all files for 1 side do not have the same sampling frequency. These particular files would be resampled in the GZ studio for the highest frequency of all frequencies used. Lower sampling frequencies (for example. 22,05 kHz and 32 kHz), are also accepted but we do not recommend them due to the possibility of a lower sound quality standard.

We recommend to send the files in the same quality as they have been recorded or received from the studio that produced, mastered or mixed the recordings. It is recommended to contact the studio in advance regarding recommendations mentioned in this section as well as recommendations for the preparation of vinyl masters mentioned on the GZ website. We do not recommend any additional conversion or transfer.

2.1.1.2 *Non-recommended and inappropriate formats:*

Lossy compressed audio formats:

- MP3, MP2, MP1 (MPEG-1 Layer 3, 2 and 1)
- MP4, AAC, M4A (MPEG-4, Advanced Audio Coding)
- AC3 (Dolby Digital), DTS (Digital Theatre System Coherent Acoustics)
- WMA (Windows Media Audio, Microsoft), MOV (QuickTime)
- OGG (OggVorbis), MKA (Matroska Audio), RA, RM (Real Audio, Real Media)

2.1.1.3 *Unaccepted formats:*

- Files with DRM protection to prevent unauthorized playback, for example, files with the extension m4p (AAC format with DRM protection).

Unsupported formats must be discussed in advance with our mastering department.

2.1.1.4 *Division of program*

We recommend saving the audio data for one side in a single file, forming a continuous and uninterrupted track, including gaps between songs. A track list with the running times for each song will serve as orientation of the audio content.

Songs saved in separate folders are not suitable data for production. There is a high risk of error due to the following possible reasons:

- Confusion when the names of the subfolders are not labeled correctly
- It is not clearly mentioned whether these individual folders contain gaps between the tracks or not.

During the compilation of the content, we assume that the files contain gaps in-between the tracks. Generally we do not automatically add gaps between the tracks! If the customer requests to have gaps added, it must be clearly mentioned in the supplied track list or production documentation. It is possible to request the length of the gaps according to each song or the same gap length for all songs.

- Compiling a master from multiple files with different technical parameters (sampling frequency, quantization, and number of channels, level) requires additional adjustments in the studio (sampling, adjustment levels).

There is a risk of unwanted gaps/dropouts during the division of the data into individual tracks when creating masters from an audio CD.

2.1.1.5 **Name and location of files**

Accurate file naming and file location helps to locate the supplied data quickly as well as enabling a smoother and hassle-free order process.

We recommend choosing a name and the location of the files by following these instructions:

- Use a separate folder for each order using the catalogue number as the folder name.
- Save all documentation files (track list, processing requirements, etc.) in this folder.
- Create a sub-folder for each side named SIDE-A, etc.
- If the program for the entire side is stored in one file, name it according to the number of tracks stored in it: such as 01-05.WAV or 06-09.AIFF.
- If the compositions are stored in separate files, name all files according to the track number and song title, such as 01-Song_name.WAV.

2.1.2 **Physical audio medium**

Analog or digital mediums containing a continuous recording of the data. Dividing the data into tracks is defined by technical means of the specific player (ID marks in the track times) or via time data in the accompanying documentation.

If a physical medium is supplied and intended for multiple sides, the content for each side must be separated by a sufficiently long silent pause (at least 3 seconds) and the sides must be clearly marked and indicated (numbers of tracks, ID, ...). The running times must also be in accordance with the accompanying documentation. The order of the songs on the supplied medium must match the requested order for the final product, so that it is not necessary to change the order of songs (rewind, skip to another track, etc.) upon playback. If not, the customer must make a note of this special requirement to change the order of tracks in the accompanying documentation.

We accept the following formats:

2.1.2.1 **CD Audio disc**

Fully functional pressed or burnt discs (CD Audio format) which are playable in a standard CD player. We do not accept shaped CDs, business card CDs, etc.

2.1.2.2 **R-DAT**

ABS time (A time) and ID START markers.

2.1.2.3 **MiniDisc**

2.1.2.4 **Analogue mediums**

1/4" Magnetic tape at speeds of 38, 19 cm/s, EQ CCIR, NAB, Dolby A, Dolby SR. We recommend to record test signals to control the tone and frequency values while setting the azimuth sensor heads on each reel or spool tape. Specific technical data must be clearly specified in the attached tracklist.

2.1.2.5 **Other mediums (after prior consultation)**

U-Matic, SACD, DVD-Audio

2.1.3 **Complex CD audio master in file form**

The data contains all information in a format that is directly suitable for mastering without any changes or adjustments. The studio only carries out an inspection of the supplied files and, if necessary or appropriate, will make adjustments to the master so that it meets the standards and recommendations of the Philips / Sony CD Audio format.

2.1.3.1 **DDP (Disk Description Protocol) format**

Worldwide standard for the transmission of data for the production of optical discs supported by all manufacturers of CD mastering equipment as well as manufacturers of professional workstations for audio processing.

We recommend version 1.00. We also accept version 2.00.

If your authoring software allows, please select the setting for storage of audio tracks in a single file.

2.1.3.2 **CMF (Cutting Master Format)**

Similar to DDP. Transferable to DDP. If your workstation supports both DDP and CMF, select the DDP option.

2.1.3.3 **Image data (ISO image) CD Audio**

Files that can be used without any modification to burn a CD Audio master – refer to section 2.1.1.

Recommended formats:

- NRG (Nero)
- BIN+CUE (CDRWin, ImgBurn, Toast etc.)

Accepted formats

- CDI (DiscJuggler)
- C2D (WinOnCD), CIF (Easy CD Creator)
- CCD+IMG (Clone CD), MDF+MDS (Alcohol 120%)
- IBP+IBQ (IsoBuster), UIF (MagicISO)
- BWT+BWI, B5T+B5I, B6T+B6I (BlindWrite)
- TOAST, CDR (Toast, Apple Disk Utils)

2.1.4 **Data mediums**

Data mediums can be used for sending audio files or disc images for burning CD-Audio format (DDP, NRG, CUE + BIN etc.). The accompanying documentation can be supplied in electronic format on the same disc. It is possible to include multiple titles on one data media.

2.1.4.1 **Optical discs CD-R(W), DVD-R(W), DVD+R(W) containing data**

Discs in CD-ROM or DVD-ROM format.

Discs must contain a compatible file system (ISO9660, Joliet, or UDF).

2.1.4.2 **Hard drive**

We accept all sizes of hard drives (3.5", 2.5"), all applicable possibilities of connection (IDE, SCSI, SATA, eSATA, USB, Firewire, LAN).

We recommend using external discs but also accept internal.

Disc formats:

- NTFS (Windows 2000, XP, Vista) recommended
- FAT32 (Windows 9X) accepted (max. file size is 4294967294 bytes)
- EXT2, EXT3 (Linux) accepted
- HFS (Apple) accepted

2.1.5 **Mass storage media**

Accepted memory cards: SD, SDHC, XD, MMC, Compact Flash, Memory Stick and USB Flash storage media.

A single storage medium may contain data for multiple titles.

2.2 **Sending data electronically – FTP**

Production materials supplied via our FTP server must contain the necessary control elements enabling the verification of data integrity prior to being released into production. Without control elements, it is not possible to guarantee the conformity of files received by the manufacturer to the original files supplied by the customer.

Orders that are not accompanied by control elements will be suspended until the customer sends the data in an acceptable format. If the customer insists on proceeding with the production using non-secured data, they must assume all risks related to any possible unintended changes (errors) of data during the transmission and storage.

Control elements can be supplied by means of any of the following methods:

2.2.1 **Archived data**

Files representing a disk image, DDP, CMF or individual audio files not containing control elements (e.g. WAV) must be packed into one single file which can also contain the documentation.

Accepted formats of archived files: ZIP, RAR, SIT, 7Z, ARJ, ACE, others upon consultation

2.2.2 Usage of data with built-in control elements

APE, FLAC - lossless audio formats with control elements

UIF –compressed audio cd disc image with control elements

2.2.3 Separately supplied Check code

Files which do not contain control elements and are not packed into a compressed archive file must be accompanied with control codes that can be used to verify any possible data corruption or unauthorized manipulation of the data.

We accept the MD5, CRC32 and SHA1 code. A code must be calculated for each file and a list of the codes must be supplied with the order documentation

The check codes can be generated via applications such as HashCalc, which can be used free of charge.

2.3 Location and identification of data and audio files

In the case that the customer delivers the order documentation via a data medium or electronically (FTP), the files must be clearly labelled and obvious as to which order they relate to. This prevents possible delays, streamlines the production process and reduces the risk of the wrong data being used.

Instructions for the location and naming of files:

2.3.1 File location

Data stored on either our customer allocated FTP server or saved on a data medium must be saved in a folder labelled with a name that matches the catalogue number of the title being ordered. Any file or folder (even inside an archived folder) must not contain invalid characters according to PC and Apple Macintosh operating systems: / \ > < : * ? |.

In the case that each track is saved in a separate folder, please create a sub-folder named SIDE A (for example) and save all individual tracks into one single folder.

2.3.2 File names

In the case that the entire audio content is saved in one file for one side, please label it according to the side + number of tracks, for example: „A_01-05.WAV“ or „B_06-09.AIFF“.

In the case that you are providing individual tracks, please label them according to the side + track number, for example: „A_01-Song_name.WAV“.

We recommend that compressed folders and disc images should be labeled according to the catalogue number of the purchase order with no additional information (date, etc.) added.

2.4 Documentation

The documentation must concisely and clearly identify the supplied material to verify the accuracy of the data during the preliminary input check and subsequent processing. In particular, all non-standard elements and abnormalities (such as defects or non-musical sounds) should be clearly noted.

Processing of orders (titles) without the required documentation is suspended until the customer supplies the source data and documentation in accordance with the technical conditions. If the customer insists on the production without the required documentation, the customer will do so at their own risk and will be responsible for any associated errors, especially concerning changes in track listings or songs.

Supplied documentation must contain the following information:

2.4.1 Identification information

Catalogue number, customer name, song titles, artist, etc.

2.4.2 Information regarding supplied data

- Type of supplied data
- Location on FTP server: directory and file name
- Data format (CD Audio master, DDP, ISO image, individual files)

2.4.3 Description of the final product

2.4.3.1 Required format

Size of record and speed; or speed of each side (if they are different).

2.4.3.2 Sides' division

2.4.3.3 Tracklist

The individual track names, the lengths of the tracks and order that the tracks should be in as well as the total playing time of both sides. We recommend specifying the lengths of the pauses between tracks.

2.4.3.4 Special requirements

Any non-standard or special requests must be clearly specified and agreed upon in advance (closed grooves, endless loops, etc.)

3 Pressing tools

Metalwork for vinyl production is manufactured using a DMM technology. We also process lacquer cuts upon request.

3.1 Pressing with supplied metalwork

GZ Media can press vinyl from customer supplied metalwork. We accept lacquers and nickel based metalwork (fathers, mothers and stampers). The supplied metalwork must be in good condition and not contain any damages or contamination or corrosion (stains on the nickel based metalwork, for example). We recommend supplied pressing tools (lacquers, particularly due to their sensitive nature) be carefully protected in suitable packaging to avoid damage during transport. Metal plates and stampers must be delivered flat and uncut/unformed.

GZ Media is not responsible for the audio quality of supplied metalwork. Any complaints regarding acoustic defects, distortion, unusual sounds, etc. as well as defects caused by improper cutting (pruning, shallow/narrow grooves, etc.) will not be accepted, such complaints will be refused. Horns on the surface of the pressing tools which are resulting from an improper cut (causing only visual defects, extremely sensitive reflective abrasions) may be removed upon specific request.

4 Labels

Each unit of vinyl usually has a central label on both sides. Vinyl labels are printed on paper material and are applied during the pressing process. Labels are made from coated paper with a weight of 120gsm - 150gsm. According to the customers' requests, records can be pressed with only one or no labels. Please consult with a customer service representative in the case that you require vinyl with 1 or no labels. Vinyl pressed without labels run the risk of deformed or larger than average central holes. Vinyl pressed with only 1 label (picture discs, in particular) run an increased risk of warping or exceeding flatness parameters (see section 1.5) – these defects cannot be subject to claim.

All labels are subject to a drying process at high temperatures in order to remove the redundant moisture and to prevent from a bubbling of labels during the vinyl pressing. Due to the drying it may happen that labels change the colouring. This effect is more visible on light and PMS colours. For example a light blue label may change to green. The manufacturer cannot be held responsible for slight colour changes on the labels during the drying process. This cannot be subject to claim.

There is a possible risk that the labels will be slightly contaminated when ordering splatter or hazed vinyl (for example) during the application of powdered or granulated material to the vinyl biscuits during the pressing process. In this case, claims can only be accepted when the contamination is obstructing the text or exceeds 1% of the total label area.

We cannot guarantee the exact orientation of labels on standard records. The manufacturer guarantees that the orientation of labels on picture discs is so that the text on the labels will be readable when the product is rotated at an approx. 180° axis perpendicular to the text. This means that the relative rotation of the label does not exceed 20°.

When using vinyl records with a non-standard label as e. g. a 12" record using a 7" size label there will be a cut visible on the record which is normally hidden under the 12" label. The reason is that 12" pressing tools are standardly prepared for a standard 12" label. The "exposed" area will not be mirrored gloss but matte. This cannot be subject to claim.

4.1 Types of labels

Basic labels are produced in the following sizes:

- a) For 7" records (17,5 cm) diameter of 84 mm.
- b) For 10" and 12" records (30 cm and 25 cm) diameter of 100 mm.

PICTURE DISC labels are produced in the following sizes:

- a) For 7" records (17,5 cm) diameter of 168 mm.
- b) For 10" records (25 cm) diameter of 242 mm.
- c) For 12" records (30 cm) diameter of 292 mm.

The text on the labels must be placed so that it does not interfere with the cutting of the labels. All labels must have a 2mm gap between the text and the edge of the label. All coloured design of labels must exceed the edge of the label by 3mm. Text must not be placed within 10mm of the diameter from the centre of all labels and for all formats.

Text cannot be placed within 40mm of the diameter of the centre for 7" labels with large central holes. All coloured design of labels must exceed the edge of the label by 3mm.

Basic labels are made from coated paper weighing 120gsm and 150gsm. Labels for Picture Discs are made of coated paper with a weight of 150gsm.

4.2 Requirements for the printing of labels

The electronically supplied customer documents must be according to the technical conditions for DTP processing.

4.3 Supplied labels

Labels will generally be produced by the manufacturer, ie. GZ Media, a.s, or may be supplied by the customer upon prior agreement. Customer supplied labels must be supplied on coated paper with a basic weight of 150gsm, have printed colors that can resist temperatures 150°C and must have orientation lines on the back side of the labels which are parallel to the paper fibers. The colors used for printing must not bleed on the face of the labels. The supplied quantities of labels (pairs) must be at least 10% more than the quantity of records ordered. The manufacturer prefers that the labels are manufactured and printed by GZ Media, a.s. In the case of customer supplied labels, the manufacturer cannot guarantee standard results.

5 Completion of the product

The product is delivered in internal and external packaging (depending on the customer's requirements) and stored in sturdy cardboard boxes. The choice of packaging is specified in the customer order.

5.1 Inner sleeve

Vinyl records of all formats can either be packed into paper inner sleeves, inner sleeves with a polyethylene (PE) lined inner bag (poly-lined inner sleeve) or microtene or polyethylene (PE) bags which protect the vinyl from wear against the outer sleeve. Inner sleeves can be with or without central holes. Paper inner sleeves can be printed via offset printing technology. The safest method of protecting the vinyl is packing with a poly-lined inner sleeve, then a microtene bag and a paper inner bag or a polyethylene (PE) bag. The most basic form of protection against minor surface marks (which will not affect the quality of the actual music) is packing with printed inner sleeves or discobags. The least protection of the record from small damages (tiny scratches on the mirror and the record of the vinyl, both of which have no bearing on the sound quality) is provided by printed paper inner sleeve, discobag and universal DELGA inner sleeves. Least suitable material is carton (card board) and art paper that is causing scratches on vinyl records with no influence on the sound quality. Defects caused by inner sleeves cannot be subject to claim.

5.2 Outer sleeve

Outer sleeves can be supplied by the customer in accordance to the technical conditions for vinyl packaging or manufactured by GZ Media according to the customer's supplied data. Outer sleeves may be ordered as unprinted universal (black or white) sleeves or can be printed with offset printing (CMYK, PMS) technology.

5.3 Shrink-wrap

Records of all sizes can be shrink-wrapped in clear plastic foil after completion of the outer packaging.

6 Printed outer sleeve

Outer sleeves manufactured by GZ Media are made from either white/grey or white/white carton and are available in weights from 280 – 350g/m². Packaging manufactured by GZ Media is manufactured according to the technical conditions of polygraphic products. The printing of the outer sleeves is carried out according to the customer's electronically delivered data. It is important to keep a minimum of a 2mm bleed around all cutting edges on the templates and to make sure that any text does not interfere with the waste area on any outer sleeves which will include die cuts (custom die cut, central hole, etc.).

6.1 Types of outer sleeves

Outer sleeves are manufactured as either flat sleeves or completed products with 3, 4 or 5mm spines. We also offer gatefolds and outer sleeves for multiple records. Standard outer sleeves are available with or without 1 or 2 central holes. Matt or gloss lamination as well as UV lack finishes are also available for all outer sleeve varieties.

6.2 Requirements for printing sleeves

See technical conditions for supplying artwork to DTP.

7 Testing

Testing and measuring methods are carried out in accordance to the CSN IEC 98 norm, which is based on IEC 98 1987.

We recommend to test the acoustic quality on equipment with (at least) a middle quality needle. There should be a weight/force on the tip set at 2/3rd of the recommended interval. It is recommended to use a needle which has biradial point.

Labels are subject to a visual inspection during the packing (insertion) into inner sleeves. Some of the automatic players can cause an issue with the automatic start of the Vinyl.

8 Operational technical conditions

Vinyl records carry sound data and must be handled carefully.

- Temperature during playback has to be between 5°C and 35°C.
- The relative air humidity must be less than 85%, without the presence of harmful chemical vapors.
- It is important to avoid any mechanical or other damage to the recording surface – for example, an incorrectly set up turntable or incorrect packaging, etc.
- Records must be stored in an upright position and not leaning or tilted (excluding direct handling and replaying)

9 Storage, manipulation and transport

- Vinyl must be stored in an upright (vertical) position, packed into transport cartons with a maximum of 4 layers. Stacking of cartons in more than 4 layers is only possible in reinforced boxes.
- Boxes must be protected against impact and lifting during transport. Stacking with other products is not allowed.
- Records are transported in closed vehicles at constant temperatures.
- Records must be transported in conditions which will not endanger their quality.
- It is the customer's responsibility to check the goods upon receipt of delivery and to mention any damages (torn or soiled outer boxes or damage to inner or outer sleeves) on the carrier's delivery note and take photos.
- Vinyl records have to be stored in the premises with the maximum relative humidity of 70% and the temperature in the range of 5°C to 32°C, protected from the direct sunlight, radiation and other heat sources.

10 Claims

There are binding conditions in the technical conditions for claims against phonographic records. In the interest of processing claims quickly, GZ Media recommends:

- Complete details of the claimed title must be provided as well as the claimed defect (specific track(s) and timing(s) must be given for audio related claims) as well as the extent of the claimed defect.
- A sample of the claimed defect must be provided. Claimed amount has to exceed 1% of the overall quantity of the order.
- Any damages or missing units must be noted on the delivery note of the transport company in the case of a damaged delivery (damaged boxes and/or inner/outer packaging) or missing quantity claim.

APPENDIX:

Appendix Nr. 1 – Definition Of Quality Standards For Vinyl Records
Appendix Nr. 2 – List Of Allowed Engraving Characters