

Hologram on CD

GZ can produce CD's with holograms on the outer circular ring of the disc, outside the digital data area. Holograms will enhance the esthetical impact of a CD; furthermore it may be used as an advertisement or security device.

We offer the following hologram types:

- a) **2D** - an image (logo, geometric pattern) produced on a single level in up to four basic "colours": red, green, yellow, blue.
- b) **2D/3D** - a hologram over 2 or 3 superposed image levels: the image on the top level casts a shadow on the images of the lower levels. For each level, a maximum of 2 shades of the basic colours may be used, and each colour may be used in only one of the levels. It is not recommended to plan too large an image on the topmost level, so as to allow for a good visibility of the images on the other levels.
- c) **3D** - a continuous hologram representing an object in genuine space. For each application of a 3D object, a special *hologram original* must be produced – the *HO*. The size of the hologram on the master CD will exactly fit the size of the HO representing the true 3-D object. The hologram may be not be resized without producing a new HO!

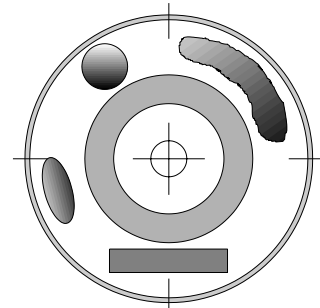
Placing an order – technical requirements

1) Size and shape of the hologram

The contour of the hologram may have any shape. Its size, however, is limited by the following parameters:

- a) the maximum radial dimension of the hologram is limited by the playing time of the sound (or data) recording, as follows:

| playing time [min] / [Mb] | max. rad.dimensions [mm] | span of ring R _{min} /R _{max} [mm] |
|------------------------------|--------------------------------|---|
| 5 / 43.5 | 25 | 31 / 56 |
| 10 / 87 | 21 | 35 / 56 |
| 15 / 130 | 18 | 38 / 56 |
| 25 / 220 | 15 | 41 / 56 |
| 30 / 264 | 13 | 43 / 56 |
| 35 / 310 | 11 | 45 / 56 |
| 40 / 352 | 9 | 47 / 56 |
| 48 / 422 | 6 | 50 / 56 |



- b) A hologram may spread over a ring section of up to 90°.

2) Number of holograms

Several holograms may be placed on a single master, as long as the holograms do not overlap.

3) Absolute and relative positioning of several holograms

The position, orientation, readability of the text (from the side of the label / of the recording), as well as the relative position of the holograms, can be set as wanted within the available ring span and changed at wish for each additional application of the same image.

4) Source of the hologram original

- a) A choice of hologram samples from our catalogue – choose the size in millimetres and the emplacement; be careful about the playing times.
- b) Custom source:
2D and **2D/3D** types:

- the image (in colours) is made in **CoreIDRAW 5.0** (and lower) in the **CDR** format; each individual layer must be drawn separately.
It is advisable to decide which part of the hologram must be the most salient (not necessarily on the first layer)
An image forming a “repeated background” must exceed the area of the image by at least 5 mm on all sides, so that its borders remain out of the field when the object is tilted.

3D type:

- model for optical recording at a 1:1 scale (material: soft metals, silver-coated plaster etc.).
- video recording or the required object – directly in the labs of Czech Holography, or on the spot in the presence of a Cz.Hol. staff member. Subsequent computer processing and optical transfer will be carried out by Cz.Hol.’s staff.

Delivery conditions

In comparison with a standard order, the delivery of an order involving holograms will be delayed as follows:

- 1) repeated application of a hologram, same size 4 days
- 2) production of a new hologram, type 2D, 2D/3D 7 days
- 3) production of a new hologram, type 3D 14 days