

# Dot Matrix Security Hologram



Security holograms are very difficult to forge because they are replicated from a master hologram which requires expensive, specialized and technologically advanced equipment. They are used widely in several banknotes around the world, in particular those that are of high denominations. They are also used in passports, credit and bank cards as well as quality products.

Holograms are classified into different types with reference to the degree of level of optical security incorporated in them during the process of master origination. The different classifications are described below:

1. 2D/3D Hologram Images.
2. Dot-matrix Security Holograms.
3. Electron-Beam Lithography.

## **Dot matrix Security Holograms**

These holograms have a maximum resolution of 10 micrometers per optical element and are produced on specialized machines making forgery difficult and expensive. To design optical elements, several algorithms are used to shape scattered radiation patterns.

This contains an array of dots to form a relief structure defined and recorded by using a computer-controlled system. The dot arrays diffract light in desired directions, resulting in holographic reconstruction of the images. Since the array of microscopic dots is computer generated, the main advantage here is that complex structures with special diffracting characteristics can be produced. Such Optical Variable Devices (OVD) has many applications. This Dot-matrix hologram is the result of designs comprising many tiny dots, where each dot is a separate diffraction grating. They create a beautiful impact of variable images. Dot Matrix hologram consists of several laser beam engraved tiny dots where each dot has unique diffraction grating. This security hologram sticker is visually appealing as it can produce a variety of kinetic effects through variable images. They create a beautiful impact of variable images.

#### **Features of a Dot Matrix Hologram-**

- 1) Moving effect**
- 2) Flip Flop Effect**
- 3) Zoom effect**
- 4) 3D Features**
- 5) Kinetic Features**
- 6) Dot Matrix features**
- 7) Hidden Text**
- 8) Micro Text**

We can recombine good dot-matrix effect together with 2D/3D hologram which has good viewing depth with different layers and hidden text. Dot Matrix Holograms are one the more vibrant holograms available. Dot Matrix Hologram invariably incorporates kinetic effects that make it interesting to the viewer.

Security ratings are high, may be considered good enough for most commercial security applications.