# 1D and 2D Barcodes

1D barcodes can be scanned with traditional laser scanners, or using camera-based imaging scanners. 2D barcodes, on the other hand, can only be read using imagers.

As well as holding more information, 2D bar codes can be printed to be very small, which makes them useful for marking objects that would otherwise be impractical for 1D barcode labels. With laser etching and other permanent marking technologies, 2D barcodes have been used to track everything from delicate electronic printed circuit boards to surgical instruments.

There are many different types of 1D barcode, but they are dependent on database connectivity to be meaningful. The item the code identifies will not change, although the price of that item frequently does, so linking the static data (item number) to the dynamic data (the pricing database) is a better option than encoding price information in the barcode itself.
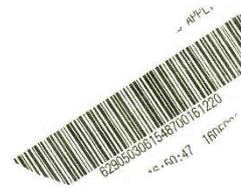
2D barcodes actually contain all the information without needing a separate database. 2D barcode2D barcodes have increasingly been used in supply chain and manufacturing applications as the cost of imaging scanners has fallen. By switching to 2D bar codes, companies can encode more product data while making it easier to scan items as they move on assembly lines or conveyors — and it can be done without worrying about scanner alignment and 2D symbols are also much more resistant to damage than traditional linear barcodes. 2D barcodes can have error correction formulas built-in.

This is especially useful in the electronics, pharmaceutical, and medical equipment industries where companies are required, often for compliance to clearly defined quality standards, to provide a large amount of product tracking information on some very small items.

Both 1D and 2D barcode types are useful, low-cost methods of encoding data and tracking items. The kind of barcode (or combination of barcodes) you select will depend on the specific requirements of your application, including the type and amount of data you need to encode, the size of the asset/item, and how and where the code will be scanned.