Anatomy of the Modern Tax Stamp

What does an excise tax stamp look like today, compared to what it used to look like? What are the drivers that have shaped the modern stamp and what are the individual parts of that stamp that make up the whole? What role does the stamp have today that it did not have before?

These are the questions that *Tax Stamp News™* will be addressing in this monthly series of articles on the anatomy of the modern tax stamp. The series will dissect the stamp and describe the characteristics and function of each dissected element - from substrates, printing methods, inks and security features, to variable data and associated track and trace systems. It will also look at the tax stamp as a whole by referring to different types of stamps currently being used across the world.

We begin the series with an overview of the evolution of tax stamps since they first came into existence, and the drivers that have transformed them into the sophisticated security devices we know them as today. We also examine the general physical characteristics of tax stamps and the challenges they present in the stamp construction process.

Part 1 - An Overview of Evolution and General Characteristics

Excise stamps have been around for hundreds of years, so in essence they are nothing new. But what is new is how they have developed over the last 30 years, in response to demands for higher security and integrated supply chain control.

The main purpose of an excise stamp, however - and the reason it was created in the first place - is to provide a physical means of collecting tax. The stamp denotes that a payment has been made - or is due to be made - to a recognised governing authority with regard to a particular excisable item.

The first tax stamps

The origin of tax stamps dates back to 1637, when Spain was the first country to introduce stamped paper. These early documents were too large to affix to the taxable item itself, but evolved into easily attachable adhesive labels that resembled postage stamps, as well as long, thin banderoles for wrapping over alcohol bottlenecks.

Early Spanish tobacco stamps - 1885

Even at an early stage in their existence, tax stamps took on additional roles - albeit unintentionally - just by the fact of being attached to a product. As well as providing visible proof of tax payment, their very presence acted, to some extent, as a guarantee that the product was genuine. Furthermore, by being positioned over the opening of a tobacco package or alcohol bottle, they acted as an anti-tampering/anti-reuse seal.

Tax stamps were originally used on a wide range of products, but became progressively less common in the latter half of the 20th century, with the exception of tobacco and alcohol. In these sectors their use has grown, particularly in more recent times where technological developments have made both the identification of individual items, and the recording and monitoring of revenues collected on them, much easier to manage.

Early Spanish tobacco stamps - 1939

Evolutionary drivers

So what has driven the tax stamp to become the sophisticated security device it is today?

Although it was perhaps only natural that tax stamps would never be just used for tax collection, the advent of a number of relatively recent global developments succeeded in accelerating their evolution and expanding their function.

One of these developments related to the progressive, and sometimes dramatic increases in tobacco excise taxes, implemented by many governments in a bid to reduce national consumption and raise revenues.

As excise taxes grew, so did the value of the stamps representing them. This, in turn, made it more worthwhile for criminals to produce counterfeit stamps for the purpose of disguising illicit, untaxed product.

This phenomenon led to the need for stamps to carry robust, visible security features - much like those on a banknote - to distinguish them from fake stamps.

But what had been considered robust before the digitalisation era (which began in the 1980s) was not necessarily considered so thereafter. The digital age saw the advent of low-cost, mass-market digital reproduction technology which, while revolutionising the modern printing industry, had the negative effect of providing counterfeiters with affordable tools for producing high-quality counterfeits.

Tax stamps, banknotes and other security documents had to counter these new threats by adopting security features that could not be copied or in any way simulated by conventional reprographic methods (including scanners and desktop printers). The most notable of such features were the hologram and optically variable inks, which today feature on a vast number of tax stamps.

Another technological driver that changed the face of tax stamps related to track and trace systems. The development of digital reproduction technology was accompanied by major breakthroughs in both data processing capability and mobile communications.

As a result, products can today be marked in-line during production with their own unique identifiers that are recorded in a database. These identifying codes may then be used to verify the product in remote locations and provide key data on source, destination and authenticity. The ability of tax stamp issuers and others involved in tax stamp programmes to monitor and record complex supply chain data in real time is something that could only have been dreamt of a few decades ago.

Other drivers that are influencing what is carried on tax stamps - at least those for tobacco - are international regulations, the most extensive of which is the WHO's global Framework Convention on Tobacco Control (FCTC) and its *Protocol to Eliminate Illicit Trade in Tobacco Products*. The FCTC is not concerned with tax collection and tax stamps as such, but it does require countries to implement a global tracking and tracing regime, using 'unique, secure and non-removable identification markings such as codes or stamps', that are applied to each cigarette pack.

Another regulation is the EU Tobacco Products Directive, passed in early 2014, which has authentication and supply chain control as its primary objectives - and not tax recovery. Like the WHO treaty, the EU directive requires all cigarette packs to be marked with a printed or affixed unique identifier. Unlike the treaty, it requires packs to include a tamper-proof printed or affixed security feature with visible and invisible elements.

Given that both the FCTC and the EU directive are not concerned with tax collection as a primary objective, it comes as no surprise that neither one of them has mandated the use of tax stamps as a carrier for the unique identifier and security features. But given that a significant number of countries use excise stamps anyway, there is no reason why the stamp could not be used for all three functions: tax collection, authenticity and track and trace. Indeed, some jurisdictions are already doing just this.

Basic characteristics and constraints

Although tax stamps have evolved into complex, multi-layered security devices with production monitoring and track and trace capability, the vast majority of them still remain paper-based - exactly like their ancestors - and possess aspects common to other security documents in terms of their production process.

However, there are a number of characteristics of tax stamps that restrict the kind of features that can be used to make them. These are:

- Their size (or rather lack thereof) - this imposes limits on the size and number of security features - especially overt ones; these features must compete with functional elements, such as product information and numbering, for space on the stamp;

- The method of applying stamps to products - most stamps are applied on high-speed automated bottling and packing lines and, as such, need to be lightweight and flexible, yet robust. This limits the suitable substrates on which they can be produced as well as the features they can carry;

- Their 'one-sidedness' - since tax stamps are affixed, for the main part, to bottles, cans or packs, they can only be viewed or examined from one side. Those features, therefore, that work on both sides of a document and/ or in transmission, are not generally appropriate. However, in some cases, they work, and to good effect. This is the case for Russia's spirits stamps, which carry a security thread that can be seen in transmission through clear glass bottles.

Same security as banknotes

Despite these constraints, tax stamps – just like banknotes - require the highest levels of security that aid different stakeholders in authenticating the product and the stamp. These features are typically divided into four levels: overt, semi-covert, covert and forensic.

Today's tax stamps are more than likely to carry all four levels. They are also more than likely to incorporate a tracking code or number.

Given the lack of 'real estate' on which to incorporate security features and functional elements, it is fortunate that each component of a tax stamp is able to carry security features.

The main component is a substrate, usually paper. The paper carries markings indicative of tax-paid status, which are a mixture of fixed and variable print.

The fixed print is common to all the stamps in a particular jurisdiction and indicates the location of the tax authority and the product to which the stamp is attached.

The variable print is usually a serial number that allows the stamp to be traced back to the time and place of its application.

The printing process, ink and substrate are all candidates for security technology. Add to this the possibility of incorporating applied and embedded features such as holograms and taggants, and the gamut of security techniques is suddenly wider than one would suppose for such a tiny piece of paper.

However, if getting all of these features into a banknote is already quite a challenge, getting them into a tiny tax stamp is an even bigger one.

In the next issue of Tax Stamp News, we will examine the different substrates used to produce the modern tax stamp. The substrate is not only the foundation of a tax stamp, on which all the other elements are built, but is also, in itself, a highly effective security feature.

Example of a modern liquor stamp with 2D data-carrying barcode