

MINT NEWS QUARTERLY™

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World Money Forum - Innovation Everywhere



On 29 January 2015 the 11th Technical Forum took place in Berlin at this year's World Money Fair. 18 talks were on the schedule, focusing on the latest innovations in the minting industry. *Mint News Quarterly* brings you an overview of the most important developments.

Innovative Measurements

The Austrian Mint has been testing Alicona's optical 3D micro-coordinate measurement technique for application in coin production. With promising results. When trying to locate and eliminate problematic areas in the manufacturing process by die measuring, this is currently the best technology there is.

Instead of just giving individual meter points, the system produces a coherent image of the entire die profile and saves it for subsequent analysis and comparison with other profiles. Even microscopically small irregularities which may cause problems during the minting process can be detected.

The system also produces profiles of rimmed edges, as well as data sets needed for the manufacture of dies that are used to produce exact replicas of existing coins.

3-in-1 PVD coating

Coated dies have a longer life expectancy, without question. The only question remaining is that of the coating technique. PVD (physical vapour deposition) coating is becoming increasingly popular. In this process, the solid coating material is first sublimated and then resublimated on the surface of the object. Unlike the more traditional electroplating, PVD coating is a relatively clean procedure and subject to very little government regulation. Integrating a coating machine into existing production requires only moderate additional effort.

With this in mind, Oerlikon Metaplas has developed a machine that can execute three different PVD coating processes – a combination that produces not only single layers of coating but complex architectural coating structures.

Inspection and Packaging

Mühlbauer has developed a method to improve edge inspection with minimal additional effort that is as brilliant as it is simple. Relying on an optical effect, the peripheral mirror image of the coin edge can be captured and inspected in one single shot. The edge inspection runs simultaneously with the inspection

On the Road to Optimized Profitability

More and more governments now consider their mints nothing but a profit centre with profit guarantee, and when this fails to happen, mints face closure.

The mints' response is to upgrade production in terms of volumes, speed and quality, which benefits the equipment suppliers. Visitors to the World Money Fair's Technical Forum were given the chance to see the latest in production, some of which in terms of performance were amazing. For example, the South African Mint's new packaging system can process 5 million coins every day – an impressive number.

And yet mints are resorting to dumping prices in their fight for every order, to avoid idle capacity. Increasing automation will only lead to ever more excess capacity. At some point in the near future there simply won't be enough work left for all mints.

Only the largest mints will survive, or those who have made good use of their history to convince their government and population that it is a matter of national importance to have a national mint – even if it would be cheaper to relocate coin production offshore.

A lot of money is currently being spent on automation and the marketing of commemorative coins – to the extent that the cultivation of a mint's image as manufacturer of national money is considered a minor matter. This, however, might be a good strategy for smaller mints to ensure their survival.

Ursula Kampmann – Editor

InfiniteFocusSL

InfiniteFocusSL is a cost-effective optic measuring system for the simple, fast and traceable measurement of micro-patterned surfaces, providing the opportunity to measure the form plus the surface roughness of an object with just one device.

Additionally the InfiniteFocusSL produces brilliant colour pictures featuring a high contrast and depth of focus, while the intelligent lighting technology allows it to be used close to the measured object.



CCI Edge Inspect

CCI Edge Inspect is Mühlbauer's TEMA Vision multi-purpose inspection module for edge inspection of coins (blank edge, lettering, and serration). It is suitable for blanks, circulation coins, collector coins and bullion coins featuring a diameter of 26-36mm. The hardware can be easily changed for other diameters.

CCI Edge Inspect provides high precision inspection combining surface and edge inspection in one distortion-free analysis image. It can be integrated into Mühlbauer's fully automatic coin inspection machine *Coin Inspect*. It can also be used as a separate conveyor solution for edge inspection and as a manual laboratory solution for spot check edge inspection.



World Money Forum *(Continued)*

of the obverse and reverse, resulting in no additional time. The new system can inspect up to 3,000 coins a minute and can be integrated into all existing Mühlbauer systems.

INEA and InduVis, meanwhile, have jointly developed a machine that combines inspection and packaging. According to the manufacturers, payback for the new system – *RHINO* – is just two years.

It has lower energy consumption, fewer rejects, and is very easy to operate. It can also be upgraded to include 3D inspection, EMS checks and other features.

On the packaging front, the South African Mint presented a brand new system, produced by the French company Velec. This fully automated, self-unjamming packaging system can count and package 5 million coins a day – with no human intervention required.

Commemorative Coins

Even more technological innovations have sprung up in the commemorative coin sector.

Dr Gerd Wagner from Reischauer presented an entirely new type of blank – the *hd-pro blank*. This has significantly higher ductility, which means better plasticity, and a profile that provides more metal to create higher reliefs at relatively low pressure.

In cooperation with the Berlin Mint, Sack & Kiesselbach has introduced a feeding system for the *TMP* (Tisch Medaillen Presse) which joins the ring and core of bi-metal blanks and combines this with

minting in one step. The end result shows a significant overall improvement due to the higher ductility of ring and core before the joining stage. This means less pressure is required for the minting, which in turn leads to a longer life expectancy of the dies.

In recent years the Mint of Poland has been exploring the third dimension in coin production. After having successfully minted a cylindrical coin, it went on to mint a coin shaped as a pyramid. The mint's latest achievement in this field is the minting of a spherical coin.

New technologies for commemorative coins also include a photonic coloured coin produced by the Royal Canadian Mint. The colours are generated from nano-structures created during minting, rather than via the application of dyes or pigments. And unlike the colour effects generated by holography, they are fixed so do not change according to the viewing angle.

The nanostructures are created by a specialised laser technique, and the colours themselves are produced through the selection and control of parameters such as nano particle size, spacing between the particles, or materials characteristics. A patent for the new technology is pending. It is likely to make its first commercial appearance on a commemorative coin, but the RCM envisages it being used as a security feature on circulating coins as well.

Summaries of all the presentations at the Technical Forum can be found at

www.worldmoneyfair.de.

RHINO – the High Speed Blanks Sorting Machine

The high speed blanks sorting machine *RHINO* from Inea and InduVis incorporates a 2D and 3D scanner, enabling it to detect and differentiate between all known defects on complex surfaces such as coins, including bubbles and dents.

The machine is based on proven mechanical concepts that, say the two companies, provide high reliability, process control and sorting accuracy. The customer can choose between one or more reject stations which allows coins to be sorted to different quality levels or by different kind of defects. The machine can also be configured and used for the inspection of circulation coins and other similar parts.

RHINO can handle up to 3,000 pieces per minute. It measures objects from 9-40mm in diameter and 0.75-3.3mm thickness. It detects surface and colour defects starting from 0.12mm².



Royal Australian Mint Celebrates 50th Anniversary

On 22 February 1965, HRH Prince Philip officially opened the Royal Australian Mint, which had been built to produce the new Australian decimal currency.

In 1959, the Australian government appointed the Decimal Currency Committee to investigate the introduction of an entirely new decimal currency. The Committee's report the following year was positive, and so the government decided to replace the Australian Pound, based on the currency of UK which harked back to the 9th century, with the Royal, consisting of 100 cents. The name proved unpopular, however and was dropped in favour of the Dollar.

But where to produce the new coins? The existing mint in Australia – founded in Perth in 1899 to process the local gold and turn this into money – was still a branch of the UK's Royal Mint. The government therefore decided to construct its own mint in Canberra in 1962 to produce the new decimal coins. Construction started in 1963, and Prince Philip opened the new Royal Australian Mint two years later. Countless television commercials were broadcast, putting the somewhat reluctant citizens in the right mood for the monetary reform. Meanwhile, the RAM was already operational, producing more than one billion coins in preparation for the introduction of the decimal currency on 14 February 1966.

Since its opening, the Royal Australian Mint has produced more than 15 billion circulation coins, and is the only to make Australian circulation coins. While the Perth Mint, controlled by the Government of Western Australia since 1970, mainly refines and strikes gold and silver, the Royal Australian Mint has established its reputation as a centre of excellence that assists countries in issuing new coin series. Cook Islands, Tonga and Vanuatu are the latest countries to commission the Royal Australian Mint to produce their coins. To mark the first strike, a celebration was held on 3 March 2015, with high-ranking representatives of the involved states attending.

The Mint celebrated its 50th anniversary by hosting a special family day, involving a rare opportunity for adults to walk through the highly secure coin factory, while children enjoyed inflatable castles and candy floss.

Thanks to its exhibition and the opportunity to watch the coin production from a gallery, the Royal Australian Mint has become a favourite site for tourists in Canberra. It is now firmly established in the national identity, as was illustrated by a speech by Kelly O'Dwyer, Parliamentary Secretary to the Treasurer, who said: 'for half a century the Mint has chronicled Australian society, sharing through our coins the events, people and subjects which mean the most to us as a nation. This is the perfect opportunity to celebrate the Mint's role in our national life.'



The Royal Australian Mint's production area as seen from the observation gallery (© Ursula Kampmann).

SAVE Act – Well-Intentioned, Badly Worded

In January the SAVE Act was introduced by Rep Patrick Murphy in the US House of Representatives. The 60 page bill is intended to cut wasteful spending by the US government, with the minting of coins also targeted.

The bill proposes that 'the Secretary may not mint or issue any coin that costs more to produce than the denomination of the coin (including labor, materials, dies, use of machinery, overhead expenses, marketing, and shipping).'

If this bill were to become law, the US Mint would only be permitted to manufacture those denominations than are produced at a cost less than their face value. That would put both the cent and the nickel (with production costs amounting to 1.66 cents and 8.09 cents respectively, according to the annual report from 2013) out of contention.

The numismatic community is worried, too, especially because the wording of this Act might well affect other numismatic products as well. Most commemorative coins are produced at a cost considerably greater than their face value. The fact that they are distributed at a price much higher than their face value is an aspect this bill does not take into account.

Swedish Coins without Nickel

Cupronickel is frequently used in the production of coins those of the US, UK, Eurozone and Switzerland all use it. According to the Swedish researcher Carola Liden, however, frequent handling of nickel by people with heightened sensitivity can result in unpleasant allergies.

It appears that the researcher's claims have been taken on board. In 2011, the Sveriges Riksbank decided to recover all cupronickel coins as part of a wide-ranging monetary reform. The new 1, 2 and 5 krona coins will be released in October 2016. All are made from copper plated steel and an alloy made of copper, aluminium, zinc and tin, respectively. The old coins will be demonetized on 30 June 2017 and 2 billion coins will be withdrawn from circulation.

The 10 krona coin is the only coin that will remain unchanged, perhaps because it did not consist of cupronickel in the first place, but was made of copper, aluminium and zinc which means a clean bill of health.

Spanish Royal Mint Celebrates 400 Years

2 March 2015 marked the 400th anniversary of the inauguration of the Madrid Mint, the present-day **Fábrica Nacional de Moneda y Timbre-Real Casa de la Moneda (FNMT)**. To mark the occasion, a plaque was unveiled on one of the mainstays of the viaduct in Madrid, in commemoration of the Mint's historical location.

The Madrid Mint was founded by a Royal Warrant proclaimed by Philip III in 1614 and coin production was first set in action in April 1615 with the minting of gold 2 escudo and silver 4 real pieces. Until 1861 it was located in the Calle de Segovia, situated at the foot of the current viaduct.

Philip III appointed the Duke of Uceda to fill the position of Treasurer of the Court Mint, and granted him complete control. In 1718, the Madrid Mint was brought under the direct authority of the Crown.

The Madrid Mint and the country's Stamp Factory, set up in the reign of Felipe IV, were merged into the **Fábrica Nacional de Moneda y Timbre** in 1893. In 1940, the FNMT was authorized to print banknotes, and soon after it also began production of security paper. Passports and national ID cards followed when it moved to its current premises in 1964, and – more recently – it has moved into smart cards and electronic certification.

In 1987, meanwhile, a Workshop for Specialty Minting was created to produce commemorative coins for the upcoming 1992 events in Spain (the Olympic Games, the fifth centenary of the discovery of America and the Universal Expo in Seville). This also produced coins for the new monetary system introduced in 1990 and, subsequently, the euro.

In 1999, in recognition of its position and service to the country, HM King Juan Carlos I granted the FNMT the title of 'Royal'.

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Old Subjects with a New Livery



Britannia is an ancient term for Roman Britain and also the female personification of the island. Since 1672, she has featured on all British coins, but was replaced in 2008 when a new set of circulating coins was introduced. She is, however, about to reappear, gracing the reverse of the new £2 coin, together with a new portrait of HM The Queen, the fifth definitive coin portrait since her accession to the throne.

Following the issue of a new series of coins in 2008, Britannia was replaced by a modernistic adaption of Bruce Rushin's 'History of Technological Achievement', and her effigy was relegated to a series of commemorative coins issued by The Royal Mint.

So why reinstate her now?

This is in part, no doubt, due to the fact that, by 2013, 25% of the British people no longer recognised Britannia, according to a survey by The Royal Mint. And also due to the fact that politicians are looking

for ways to cement the union that makes up the country, the future of which was threatened by the Scottish referendum on independence of last year and which could be again.

According to Adam Lawrence, Chief Executive of The Royal Mint, 'the instantly recognisable figure of Britannia has a long, enduring history which has evolved and changed in keeping with the nation which she represents. She has come to stand as a symbol of renewed optimism for our country, and has a rightful place on the currency of the United Kingdom.'

Meanwhile, the definitive coin portrait of Queen Elizabeth II, the fifth since her accession to the throne in 1952, has a tradition of its own. It was designed by young artist Jody Clark, an engraver and designer with The Royal Mint. The portrait was chosen by a closed competition commissioned by the Royal Mint Advisory Committee and will feature both on the new £2 circulating coin and, from this month, all British commemorative coins as well.