

# A new banknote for Morocco. A 25-dirham commemorative banknote for the 25th anniversary of Dar As-Sikkah

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At the end of December 2012 Bank Al-Maghrib, the Central Bank of Morocco, issued a new banknote to mark the 25th anniversary of Dar As-Sikkah, the Kingdom of Morocco's banknote printing works and mint. It is an original banknote with a face value of 25 dirhams (DH), and it differs in several respects from the banknotes in circulation, most notably in terms of its substrate.

In 2012, Dar As-Sikkah celebrated 25 years of existence as it was inaugurated on 5 March 1987 by His Majesty King Hassan II; it is in charge of printing Morocco's banknotes and minting its coins - both symbols of national sovereignty. From the outset it has also been entrusted with the manufacture of the Moroccan Passport and the National Identity Card; in 2009 it became the centre for manufacture and personalisation of biometric passports for all Moroccan citizens. Dar As-Sikkah views the development of these activities as opportunities to develop and build up extensive experience and in-depth knowledge of cash cycle management, from design and manufacture of banknotes and coins down to their withdrawal from circulation and destruction, along with cash processing, and supervising the CIT companies involved in cash recycling.

## The production of the 25 DH commemorative banknote

### The design

Designing the 25 DH banknote took six months. The theme for the banknote started as a commemoration of the 25th anniversary of Dar As-Sikkah, with elements of Moroccan cultural and artistic heritage added in.

First, a functional lay-out was defined and then it was decided to design the banknote in portrait

form so it could be viewed vertically as opposed to horizontally - an idea adopted for the first time for Moroccan banknotes. The lead time for the design was shortened significantly thanks to ONE software and to the skills and expertise of Dar As-Sikkah's designers and technicians.

The attributes of the banknote such as denomination, dimensions, vignettes, colours and designs were all defined at this stage. Many potential constraints were also taken into account, such as new printing technologies, durability and printability.

### Security

Particular attention was paid to security in order to reduce the risk of counterfeiting. The objective was to develop a new banknote with innovative and easily recognised security features. The 25 DH banknote includes security elements such as a secure substrate, a watermark, intaglio printing, a colour changing security thread, transparent windows and a dynamic colour shift printed design.



Dar As-Sikkah's premises / BAM



Front of the 25 DH banknote / BAM

### The substrate

Its selection was guided by the desire to try something new and innovative. In fact, the durability of the low denomination banknotes is provided, mainly, by the substrate. At first glance, polymer would have been a normal and immediate choice. However, in the end the banknote was printed on Durasafe®, a part polymer, part paper substrate composed of a layer of polymer extruded between two layers of paper.



Back of the 25 DH banknote / BAM

This highly innovative substrate was presented publicly by Landqart AG the first time during the 16th Conference of the Association of African Banknote and Security Document Printers held in Fez in May 2010. Dar As-Sikkah had also done some preliminary print testing on Durasafe® in 2010 which yielded very promising results.

This substrate attracted Dar As-Sikkah's attention thanks to its printability, which is comparable to that of traditional banknote paper, and its excellent mechanical properties, which should confer a longer lifetime on the banknote. A study of the durability of the banknotes in circulation will be carried out to determine whether these expectations are met.

The results of acceptance tests performed by Dar As-Sikkah's laboratory showed the technical characteristics of this substrate to have a number of advantages over a traditional substrate:

- Roughness Bendtsen: 525 ml/min
- Air permeability Bendtsen: < 0.5 ml/min
- Tensile strength dry: > 110 N
- Mean Double Fold: > 20,000 U
- Tearing resistance: > 1,400 mN

### A technical summary of the commemorative banknote for the 25th anniversary of Dar As-Sikkah

#### Design Characteristics

**General theme:** Commemoration of the 25th anniversary of the inauguration of Dar As-Sikkah.

**Dominant colour:** Orange.

**Front:** Portrait of His Majesty King Mohammed VI.

**Background:** views of the facades of the Bank Al-Maghrrib's headquarters buildings in Rabat and also of Dar As-Sikkah

**Back:** Illustrations evoking the activities of Dar As-Sikkah, particularly printing banknotes, minting coins and manufacturing biometric passports.

**Background:** architectural motifs of the facade of Dar As-Sikkah and some guilloche patterns.

#### Technical characteristics

**Substrate:** A structure formed with a layer of polymer extruded between two layers of paper (Durasafe®).

**Size:** 70mm x 130mm.

**Watermark:** Portrait of His Majesty King Mohammed VI.

**Security Thread:** A rose to green colour change in reflected light; in transparency the repeating motif of the number "25" together with a 5 pointed star is clearly visible.

**Secure Window:** Transparent and bearing the Coat of Arms of the Kingdom of Morocco.

**An optically variable motif** with a dynamic change of colour (SPARK): the Royal Crown.

### The inks

The inks used were prepared in-house. These included offset and intaglio inks, for which base inks from the SW series were used. The small production volume, about 130,000 sheets, made this the most appropriate approach. Quality control was performed by the Dar As-Sikkah's laboratory, which checked the raw materials thoroughly. Some difficulties had to be overcome by adapting the inks to this new substrate during early production runs. The bleeding test (used to assess printability) yielded very good results and the tactility and crispness of the note are ranked as excellent.

### Pre-press

These activities underwent exceptional development at Dar As-Sikkah. The new technologies of CToP and CTIP were used extensively for the first time from A to Z for the 25 DH banknote. This was a great success and saved a significant amount of time during the origination process. The manufactured plates were top quality.

### Printing

The 25 DH was printed on the presses of the new line installed in 2012; an investment of several tens of millions of euros, enabling the modernisation of the factory and placing it in the premier league of banknote printing works. The new line comprises presses of the latest generation: offset, intaglio, silk screen, letterpress and varnishing, as well as a finishing line (cut link) that is fully integrated with automatic quality control. This modernisation effectively doubled Dar As-Sikkah's production capacity which now stands at a billion banknotes a year. The strategic objective is for Dar As-Sikkah to position itself among the ranks of the leaders to ensure its prosperous future over the next 25 years.

The programme was to print 4.2 million banknotes of 25 DH on this occasion. 4 million banknotes were issued into circulation and the remaining 200,000 are reserved for collectors.

The printing processes used for the new banknote, in order, were:

- Offset: Perfect register enables intricate motifs to be printed in the background.
- Intaglio: Printed on the front side only giving high tactility and relief.

- Screen Printing: An image of the royal crown in optically variable ink with a rolling colour change (SPARK) on the front of the note.

- Letterpress: One serial number, only printed on the back.

### Special numbering

A special numbering series was made for the 4 million banknotes produced «87 د 000000». The two Arab letters designate Dar As-Sikkah; four serial numbers were chosen to represent the 25 years - 87, 12, 08 and 33 - which designate respectively the Gregorian years 1987 and 2012 and the lunar years 1408 to 1433 on the Islamic calendar. The serial number 00 is reserved for the 200,000 banknotes destined for collectors.

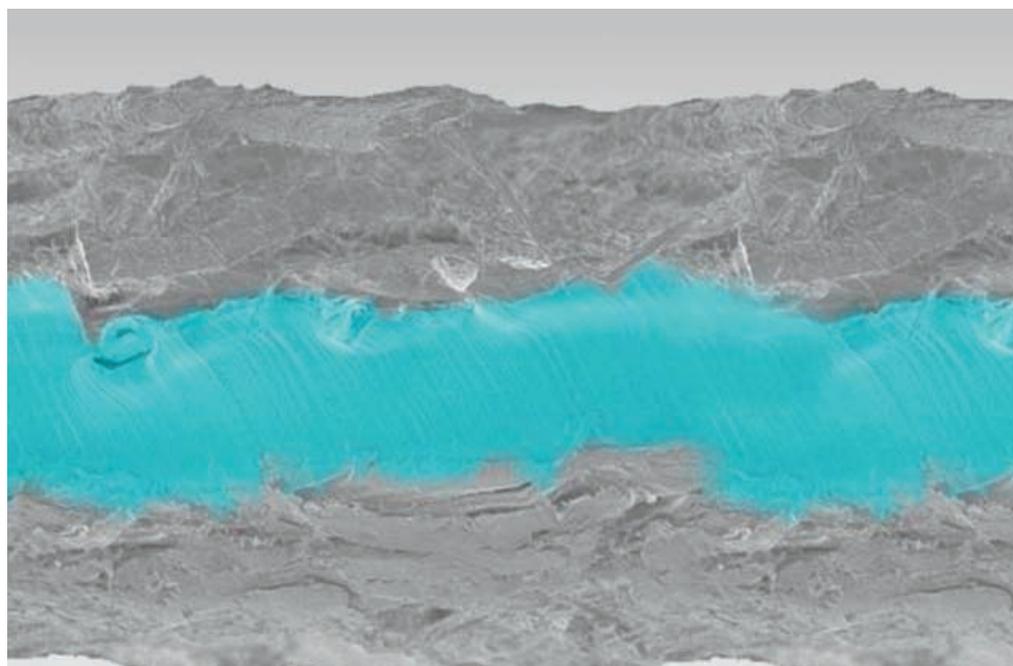
### Automatic Quality Control

The process is carried out on the sheets throughout the printing phases and after cutting of the finished banknotes. A wastage rate of less than 8% was registered for this printing of the 25 DH, a rate slightly higher than that for the main banknote series owing to the small production volume.

### Traceability

Traceability is assured for each lot, each sheet and each note with the ABACO system. Rigorous traceability is ensured from the entry of the raw materials through to delivery of the finished banknotes. The double book-keeping of stocks, video surveillance, and thorough internal control systems guarantee integrity at each stage of the production process.

The celebration of the 25th anniversary of Dar As-Sikkah was an emotionally charged moment for two reasons. Firstly, because of the modernisation of all the stages in the factory production process, and secondly the issue of this new banknote totally designed and produced using Dar As-Sikkah's in-house capabilities. Numerous challenges have been faced and overcome by Dar As-Sikkah and its partners to produce this pioneering banknote: most notably the durability of the banknote substrate chosen and its security elements. An evaluation of this experience will be conducted with Landqart AG in a year's time after the return of the first banknotes from circulation. DarAs-Sikkah will undoubtedly be continuing its unending journey along the road of continuous improvement in the years ahead.



Cross section of Durasafe® / BAM