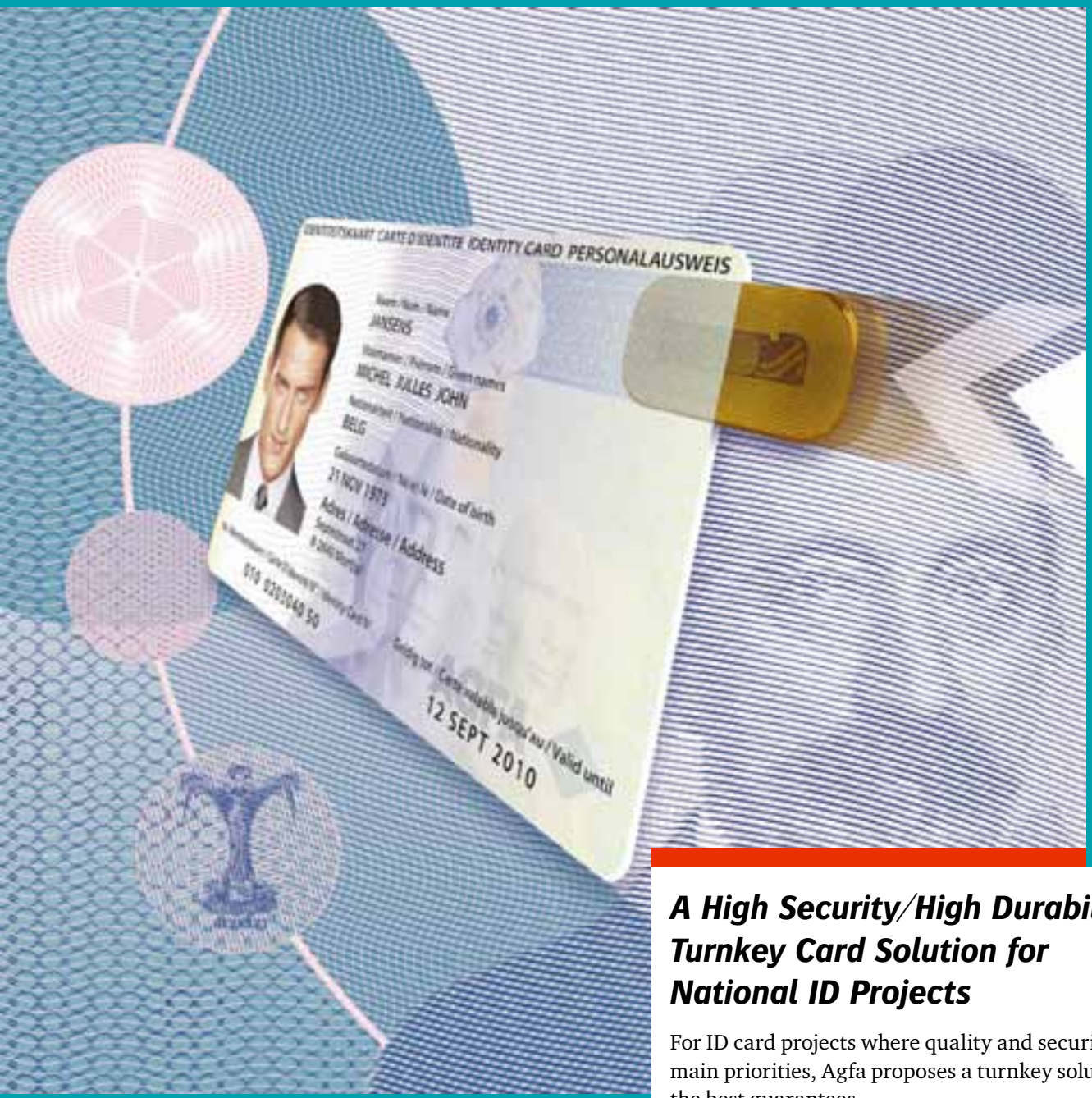
ANaiS M1.0

Agfa's Card Solutions



A High Security/High Durability Turnkey Card Solution for National ID Projects

For ID card projects where quality and security are the main priorities, Agfa proposes a turnkey solution offering the best guarantees.

AGFA

Features

- Full polyester complex card body.
- Unique personalization solution using photographic transfer process DCT-Pro (Digital Continuous Tone Professional).
- Portrait physically located under the security printing.
- All personalization within card structure.
- Integrated, automated card production/personalization machine with modular design.
- Compatible with contact / contactless chip technology.

Benefits

- Highest durability on the market.
- Easily discernible from any other printing.
- Photographic quality colour or B/W portrait.
- Field proven concept protected against tampering and counterfeiting.
- No surface personalization.
- No need for additional protective foils.
- 1500 finished cards/hour.
- Centralized production for maximum security.
- No blank card logistics.
- Extendible with additional security features.
- Optimization of the local content.

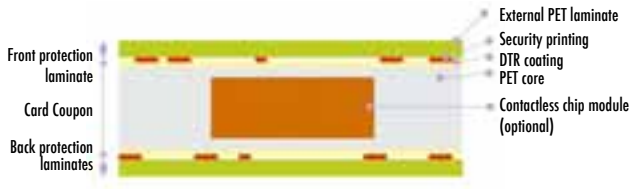
•The High Security / High Durability Turnkey Card Solution for National ID Card Projects

A Composite Full Polyester Card Body

The card body is entirely made of a special complex of the **most durable materials** (combination of different types of polyester), especially designed to meet the most stringent requirements of national ID projects.

Structure of the card

The card is composed of an **inner layer** (the "card coupon"), which may contain a contactless chip, and **two external layers** which protect the inner layer against tampering, mechanical abrasion and ageing. The inner layer as well as the external protective layers have a multilayer structure.



The inner layer

The inner layer is made of several kinds of polyester. Compared to most other plastic materials used for the manufacturing of plastic cards, including polycarbonate, the resulting complex offers superior characteristics in terms of durability. The inner layer of the card is coated on both sides with a thin light-intensive **DTR-S coating** on which the security printing is applied.
During the personalization process in ANaIS - Agfa National Identification System (see further), the portrait is transferred **(DCT-Pro- photographic process)** into the DTR-S coating in between the guilloches of the security printing. The result is an inner layer containing in its structure the personal data. Since the ink of the security printing is on the surface, the portrait cannot be changed without irreversibly destroying the security printing and the external layers of the card.

After personalization of the inner layer, and before the automatic bonding with the external protective layers, additional security features can be applied such as hot stamped personalized holograms, multiple variable personalized images, text in transparent optically variable and /or luminescent inks.

Both sides of the inner layer carry security pre-printings containing the required security features such as rainbow printing, microtext, guilloches, anti-copy features, printed labels using optically variable inks, luminescent inks, pre-numbering, etc.
In addition to the portrait, personal data represented by signatures(s), fingerprints, personal text data in any language, OCR characters or 2D barcode…, can be applied.

The external protective layers
After personalization, the two external layers made of a complex of polyester, are bonded to the personalized inner layer on both sides (fully automated process handled by ANaIS), in order to protect the personal data against forgery, abrasion and ageing. They contain a UV-filter on the front. They may also contain optional security features such as a luminescent printing and/or an optically variable device (hologram, etc.) specially designed for individual customers.

The DTR-S coating
The DTR-S coating allows the transfer of the portrait underneath the security printing. It ensures a strong bond between the polyester inner layer and the external protective layers of the card. Any attempt to delaminate the card will result in irreversible alteration of the security printing (easily detectable) and the destruction of the personal data.

Since the portrait migrates into the DTR-S coating and does not interfere with the bonding, the DCT-Pro process offers a very high resistance to delamination. When using competitive methods, either the inks (in case of dye sublimation), burnt materials (in case of laser engraving) or toner (in case of laser printing) are inserted between the inner layer and a thin overlay, thus rendering a weaker bond between the two layers.

ISO standards
The cards comply to ISO requirements, with respect to width, height, thickness, corners and edges, toxicity, delamination, adhesion, light transmission, warping and ultraviolet light. They greatly exceed the ISO requirements with respect to bending and mechanical strength.

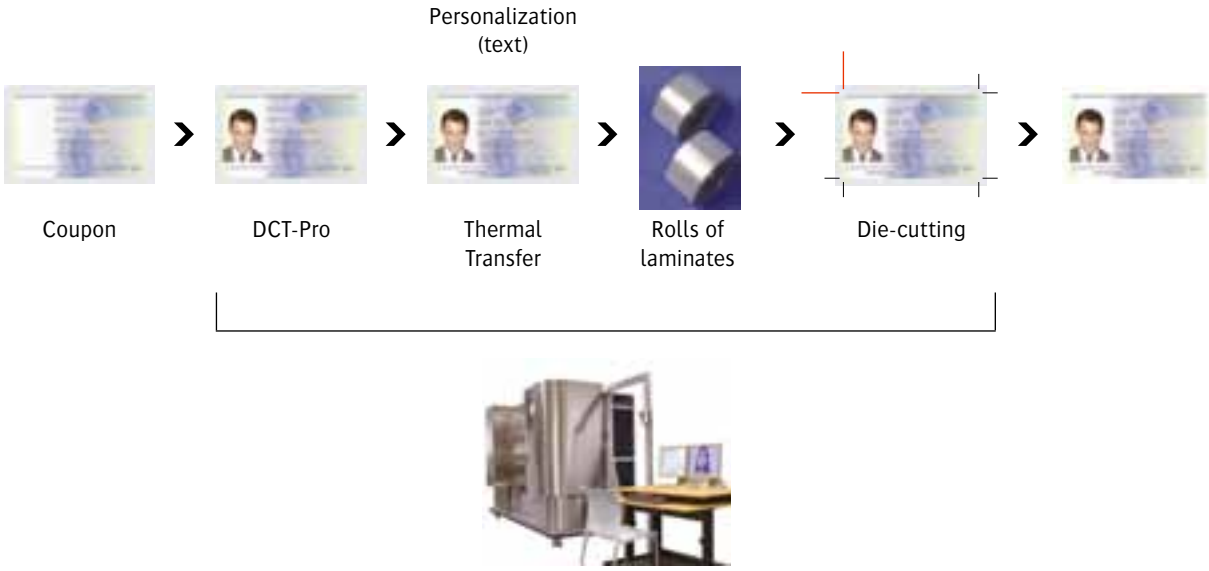
The DCT-Pro Personalization Technology

An improved version of the proven DTR-technology (Black/White) as used in several countries (references on the back of this brochure), the **DCT-Pro**, is now available for use with the polyester substrates engineered by Agfa.

- The DCT-Pro technology allows the digitized **colour** image of the portrait to be chemically transferred onto the inner layer of the card, **underneath the security printing.**
- **The photographic resolution of the continuous tone portrait** is the characteristic of the DCT-Pro personalization process. It strongly differs from pictures obtained through standard printing methods typically used by forgers to tamper with a document or to substitute a picture (colour copiers, laser or inkjet printers, ...). These printing methods being strictly digital, the picture is composed of pixels. Because of the nature of the printing technologies, counterfeited documents can be more easily spotted than with continuous tone technology.

The DCT-Pro photographic process is described in detail further in this brochure.

The Automated Card Production / Personalization Machine



ANaIS is a closed machine which produces and personalizes the cards by a fully automated continuous process in a secure environment.
This machine has a production capacity of **1,500 cards per hour** and it can handle from 1 to 2,000 cards.

The coupon

The coupon corresponds to the inner layer of the card. Agfa supplies the coupons with the DTR-S coating on both sides. Its format is 100 mm x 70 mm, with a thickness of 700 μm. The coupons can be delivered already pre-printed with the security background or blank if the pre-printing is done locally.

When a contactless chip card is required, the coupon contains the contactless chip and the antenna.
Before production, ANaIS is loaded with a batch of pre-printed coupons and rolls of external protective layers.

Production

Coupons are advancing through the machine in a step-by-step fashion, from station to station, by means of a chain conveyer.
Each station has a predefined function. Some of these functions can be carried out when the chain is moving and others when it is stopped. During the entire process of manufacturing and personalization, the coupon is kept fixed to the conveyer to prevent misregistration between consecutive process steps.

During production, all the operations which are needed to produce and personalize the cards are performed by the machine without human intervention:

- Transfer of the portrait onto the coupon (DCT-Pro process).
- Printing of the personal data.
- Application of optional security features, …
- Lamination of the external protective layers.
- Die-cutting to ISO-size (ID1 format).

Coming out of the machine, the finished personalized cards are automatically loaded into a stacker which can be directly transferred to a standard chip embedding / personalization machine.
The controller of ANaIS, which operates under Microsoft Windows™, accepts files in a standard format, containing input data of the production batch to be produced. It outputs the finished cards. The controller also monitors all aspects of the card production, tracks possible failures of system components and issues standard or customized production reports.

ANaIS is automatically locked during the operation of manufacture and personalization, to prevent intentional or accidental human intervention.
Any attempt to interfere during the process stops the system and launches an alarm procedure.
ANaIS is **modular**. Optional functional modules or subsystems (hologram hot stamping, laser engraving, …) may be added. It can also be customized to specific requirements.
The manufacturing / personalization process is described in detail (see further).

•The Concept

Solution for contact ID cards

ANaIS is designed for **manufacturing and personalizing** national ID-cards on the premises of the Administration or of the local company appointed by the Administration. This procedure avoids the constraints and risks linked to the supply of blank cards by an outside source.

Agfa's turnkey card solution represents a complete functional subsystem interfaced with other subsystems through a network monitored by the Authorities.

When contact cards are required
The card body is fully personalized and verified before insertion and personalization of the chip. Only quality controlled personalized cards are sent to the chip embedding/chip personalization stage, to minimize the waste of (expensive) chips.

When contactless cards are required
ANaIS processes coupons with or without contactless chip. When processing coupons with contactless chip, the output is a fully personalized card body with in its inner layer a contactless chip which has to be personalized on a separate station.

Migration path
A national ID-card project can be initiated with a highly secure and durable card without chip and can later be upgraded with a contact/contactless chip while fully preserving the initial investment.

Coupons

Exterior laminates

Jansens Michel Julles John...

- Continuous process for the manufacturing of finished personalized cards from the coupons
- Modular (adaptable)

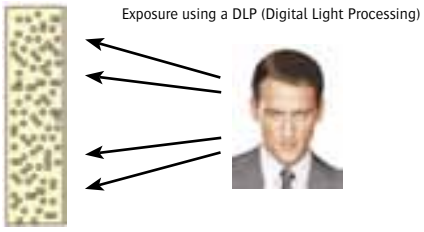
Any standard chip embedding machine

The DCT-Pro Process

The entire process is performed automatically in ANaIS at the speed of 1,500 cards per hour.

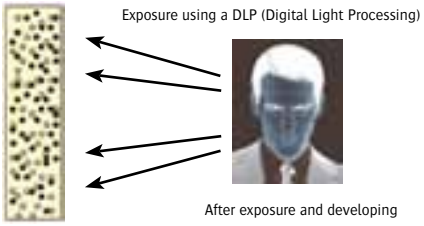
The DCT-Pro Process (1)

Negative film



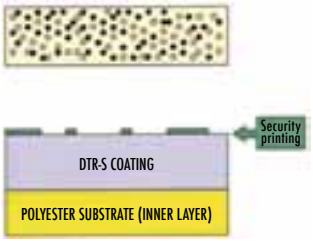
The DCT-Pro Process (2)

Negative film



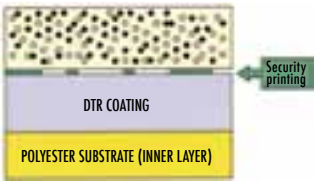
After exposure and developing

The DCT-Pro Process (3)



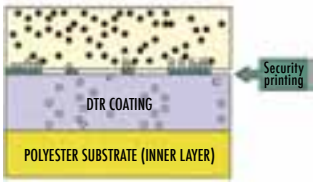
The negative is applied to the pre-printed inner layer

The DCT-Pro Process (4)



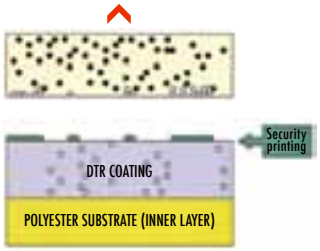
The negative is applied to the pre-printed inner layer of the card

The DCT-Pro Process (5)



The dyes migrate into the DTR-S coating **in between the guilloches of the security printing**

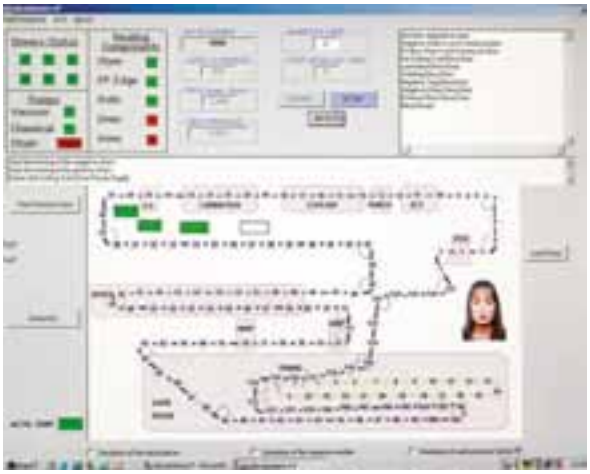
The DCT-Pro Process (6)



The negative is peeled off

When starting the process, the operator places a batch of coupons in the system and starts the process of manufacturing / personalization.

This process is fully controlled by the system.
The necessary data, to be transferred to the body of the card, is coming from a database.



Example of Graphic User Interface

Process stages

First of all, ANaIS identifies the type of coupon which is introduced into the chain conveyor. It then verifies consistency with the card type to be produced (national identity card, foreign resident identity card, etc.). Next, the card is automatically transported,
by the chain conveyor, to station 1.

Station 1. Transfer of the portrait into the coupon.
This function is performed in several consecutive steps using the DCT-Pro technology:

- Exposure of the film negative (patented method),
- Chemical transfer of the portrait from the negative below the security background (by application of the negative onto the coupon).
- Rinsing, stabilizing and drying of the coupon.

Most of this takes place in a darkroom at the bottom of the machine. The chain conveyor then transports the coupon to the following stations.

Station 2. Deposit of the holographic label (optional).
The next step is putting the accurate stamp of a holographic label in a dedicated area, such as the corner of the portrait.

Station 3. Printing of personalized data.
After finalizing the transfer of the portrait, high quality thermal transfer printers are printing the data simultaneously onto the inner part of the external layers.

Station 4. Lamination of the coupon between two security laminates.
The two external layers containing additional security elements, such as texts in OVI, are presented in the form of two rolls.
The coupon is inserted between the two external layers, forming a kind of pouch which is introduced into a special hot/pressure laminator to bond the two layers irreversibly to the front and the back of the coupon.

Station 5. Die-cutting.
Finally, the ID1 format is die-cut and the card is conveyed onto a stacker. The remaining skeleton goes into a removable bin.
At the end of the process, the finished cards contain all the security elements and all the visual information. They are placed in a stacker, ready for quality control. Now, the visual control of the cards can take place. If an irregularity occurred during the personalization process generating a fault, it is a card without a chip which will be rejected.

The control station of ANaIs.
The operator only feeds coupons into ANaIS and then starts the process. All state-of-the-art access control technologies are available to ensure that only authorized people can start the card production.

During the production process of identity cards, the operator can follow and monitor the correct progress of the production cycle: the control screen displays different parameters and messages, which are controlling the process. Any irregularity is immediately reported to the operator and subsequently recorded. If there is a failure during production, an adequate procedure, to be agreed upon by the customer, is implemented, e.g. destruction of cards in the course of production, immediate restart of the process, waiting for a command from the central system, …

At the end of each production batch a customizable report is generated. Any incident which may have occurred during production, is also reported.
ANaIS also features self-testing and calibration functions.

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Customer References

The following ID-documents based on Agfa's products (DTR, plastic overlays with security feaures, etc.) are currently in circulation (over 100 million documents worldwide):

The French National ID-card
(DTR & plastic laminates)

The Belgian ID-card – 1st & 2nd generation
(DTR & plastic laminates)

The driver's license of South-Africa
(DTR & plastic laminates)

The national ID-card of Kenya
(DTR & plastic laminates)

The national ID-card of Cameroon
(DTR & plastic laminates)

The driver's license of Poland
(Plastic laminates)

Specifications

Material	Stainless steel
Identification	ANaIS DCT-Pro.
Dimensions (HxWxD)	2,038 x 3,008 x 1,397 mm
Weight	2000 kg
Minimum requirements	Mains : 380V, 3 ph, 20A/pph. Compressed air: 7 bar – 16 m³/h. Cool air input: 13°C + 1°C, 190 m³/h. Environment: 23°C + 2°C, 50% RH 13°C + 10%. Hot air evacuation : Ø 75 mm. Floor load capacity : 750 kg/m².

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For further information, please contact:
http://IDcards.agfa.com

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