

CHECKING AND USING THE INK

Preserving the colour

It is advisable to store the ink in a dry, well-ventilated, dark place with a temperature of between 10° and 25°C (avoiding the direct rays of the sun).

It is important to store the ink well away from sources of heat and also from acid or alkaline products.

Mixed storage is not advisable.

Make sure that the containers are tightly closed. The containers should be in the normal position (standing up).

Once a container of ink has been opened, it is advisable to close it again, to prevent it drying out, or a crust forming on top. To avoid, or remedy these problems, carry out the following procedure: cover the ink with a layer of thinners of the same series as the ink.

Catalyst

The catalysts used in bi-component inks are usually hygroscopic and can lose effectiveness in a damp atmosphere, if the containers are left wholly or partially open.

Safety and hygiene

Follow the producer's technical specifications (Safety and hygiene cards) regarding safety measures, risk prevention and hygiene.

Compatibility with other products

The recipient where the ink is prepared, as well as all the utensils used during preparation, must be kept clean and in perfect condition, in order to avoid contaminating the ink preparation.

In order to avoid any possible incompatibility, which could lead to a mixture of ink or auxiliary products of a different type, it is advisable to clean the following thoroughly: ink-trays, blades, mixing containers, spatulas, plates, etc., each time the colour or type of ink is changed.

RULES FOR THE TREATMENT AND USE OF THE CERAMIC RING (Pad printing)

TREATMENT

- Prepare an area of the laboratory where the ink trays can be stored (number the ink trays)
- Avoid any bumps and do not handle inappropriately
- When a ring is changed, make sure that it is correctly situated in the ink tray.
- Before starting work, check the state of the ceramic ring. To do this, lightly run a fingernail over it. Tell the head of department about any incident noticed.
- Never leave the ink tray upside down on a table or on any other surface (ceramic ring in contact with any object)

- Do not mix the ink inside the ink tray using metal utensils (spatulas, screwdrivers, rods, etc.. Use spatulas and small wooden sticks)
- Pay attention while positioning the plate on the ink tray. Facilitate the positioning of the plate and avoid any abrupt contact.
- While extracting the plate, avoid pulling it, in order to prevent the ring coming into contact with the edge of the plate. This could cause a burr on the plate, which could lead to broken teeth on the ring.

CLEANING

Take great care while cleaning the ink trays (avoid bumping them lightly when cleaning them in the tanks)

- Do not leave cleaning utensils or ink trays inside the cleaning tanks
- Do not leave the ink trays inside the cleaning tank. Another worker could put other utensils in with them and this could break the ring or knock some of the teeth off.
- When cleaning off the dried ink residues, avoid scraping the ceramic ring with metal utensils (screwdrivers, spatulas). Clean the ring using a clean cloth and solvent.

IN THE MACHINE

- Avoid any excess of pressure in the contact between the ring and the plate.
- Make sure that the position of the ink tray in the machine is correct.
- If the parallelism in the forwards and backwards movement of the ink tray as regards the plate is not correct (mechanical phase shift, play, uneven base), the ink tray will slide over the plate in an unusual manner, causing attrition that will make it impossible for the system to function.
- The surface of the base or support of the plate must be flat, with no irregularities. La superficie della base o supporto della lastra deve essere piana e non presentare irregolarità.
- The location of the plate on the base support must be correct. If the plate can move, it is not completely in position, or it is not inserted into the support, so the ink tray will stop on the surface of the plate (especially in the printing area), making a burr on the plate and causing the ceramic ring to break or lose teeth.
- Avoid bland materials or those of low quality on polymer plates. If the plate is made of steel, the possibility of the rings deteriorating is greater. Any incidents such as those described in the points above should be judged negatively.
- If the plate is made of steel with screen engraving, this could cause a sanding effect on the ring.
- While working, do not allow any dry ink to accumulate on the edges of the ring.

TRANSFER OF THE INK

When idle, the pad is situated on the head and the ink tray covers the engraving with ink.

The pad is transferred and collects the ink from the engraving.

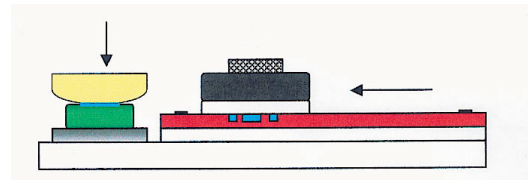
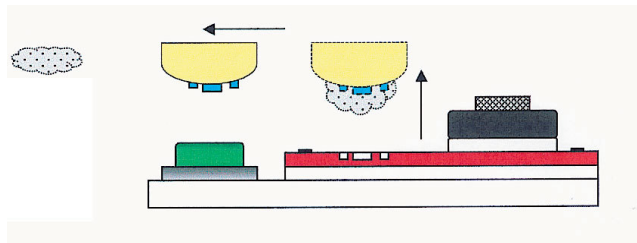
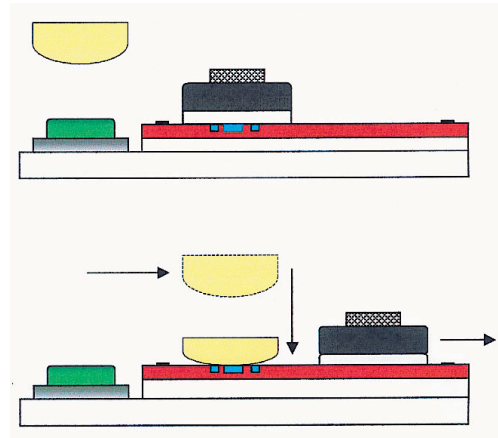
The ink tray is positioned on the rear part of the plate.

The speed of the entire pad stroke and the pauses made by the pad on the engraving and on the piece, determine the transfer of the ink.

The pad collects the ink from the engraving and positions itself on the head. During this journey the ink becomes tacky due to the evaporation of its solvents.

A slight change in viscosity occurs in the ink.

The pad enters into contact with the surface of the head and transfers the ink.



TRANSFER OF THE INK

The pad is used to define part of the most important process of the pad printing system (pad printing).

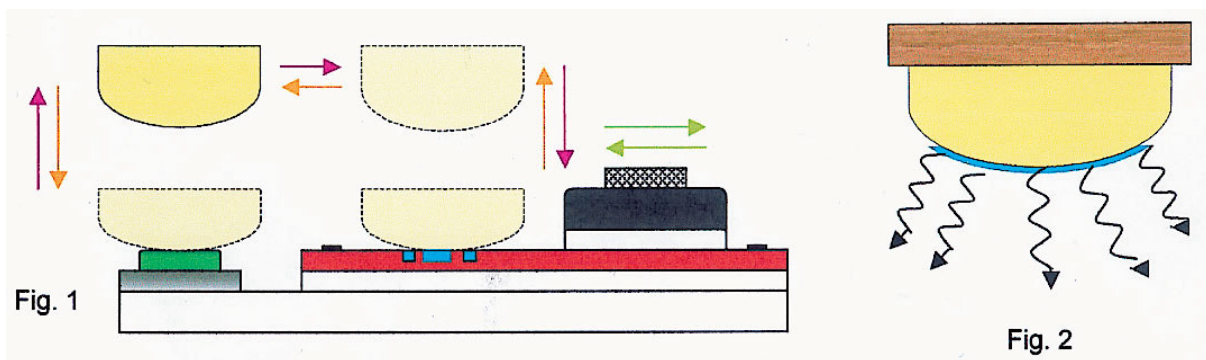
SEQUENCE (Figure 1)

- The moment in which the pad begins the journey to collect the ink in the engraving.
- The descent of the pad and its contact with the engraving on the plate and collection of the ink.
- The trajectory and transport of the pad loaded with ink; from the engraving to the plate to the piece.
- The descent of the pad and its contact with the piece and transfer of the ink.

During this journey and in only a few seconds, the ink is collected from the engraving by the pad and becomes tacky, due to the evaporation of the solvents contained in the ink (Figure 2)

The best ink transfer, the quality of the print, as well as how well it is maintained over time, depend directly upon:

- The thinners used in the preparation of the ink (quick, slow)
- The viscosity and degree of dilution of the ink.
- The speed of the machine or work cycle.



SEQUENCE OF MIXING THE COLOUR

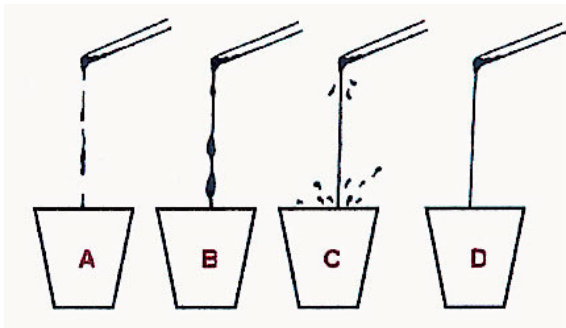
Mixing can occur by weight or by percentage. We advise you to check the value of the mixture by weight; to do this it is necessary to use a weighing machine with the highest level of precision possible.

- 1° The first operation consists of mixing the ink in the pot before filling the mixing container (it is advisable to do so in order to eliminate air bubbles)
- 2° Fill the mixing container with ink. The container can be of glass or plastic, PP or PE.
- 3° Add the thinners to the ink slowly and carefully; alternatively mix vigorously, until a homoeogeneous mixture is achieved. The aim is to adjust the viscosity in accordance with work requirements.
- 4° Allow the ink to rest for a short time.

If you are working with an ink with two components, you must first add the exact quantity of catalyst as prescribed by the producer, and afterwards the necessary thinners to correct the ink.

Bear in mind the length in hours of the mixture, it can be from 8 to 12 hours or more, according to the type of ink (see the technical cards).

Inadequate mixing will cause adherence problems in the substrate.



- A- Very high viscosity. Lack of fluidity (add thinners)
- B- High viscosity (add thinners)
- C- Excess dilution (add ink)
- D- Balanced mixture (the mixture of ink and thinners is homoeogeneous and continuous)