



Multicolour-flocking ... and your Products become more attractive
by HEBBECKER GMBH Germany

Multicolour-flocking on Mats, Carpets, Textile and other flat material

The flocking process is to be done as follows:

A film has to be made from the desired design.

For the adhesive coating you need
a film covering the entire motif;

For the single flocking colours only the corresponding
colour extract. With the individual films the screens will be made.

The screens for the
adhesive coating covering the entire motif is covered with
screen mesh PES 12-140 W

(= 12 threads/cm – 140 µm Thread diameter) monofil.

The screen emulsion is
water- and solvent resistant and additionally lacquered.

For the flock screen

a metalized mesh, with the recommended mesh
dimension 24-120 (24 T) is recommended.

Alternative you can use a mesh made from stainless steel
Qualitywise we don't recommend a Polyester –
mesh because of the bad electrical
conductivity of this material.





Adhesive:

Highly modulated-
mesh from
monofilament
Polyester

Flock:

metallized

highly modulated
mesh

Fabric Number	Mesh-opening	Thread diameter	Open area %
12-140	688 µm	140 µm	68,2
24-120	260 µm	140 µm	45

The screens are to be adjusted accurately. The correct distance of the screen surface to the adhesive coating results from the length of the flock fibre. We recommend to fix close to the design distance-plates.

At the feeding station of the VERSAFLOCK-MAT the Mat has to be placed onto the pallet. At the second station- adhesive coating- the adhesive will be applied through the open meshes of the adhesive screen by means of a squeegee after the cycle has brought the textile under the station. It is very important to obtain a good connection to the base material (Mat) and to build up a sufficient high adhesive coat on the base material. During the same working cycle the adhesive coating is followed by the flocking process.

Thickness of adhesive layer + 10% of fiber length + fiber length.

Example: Flock 2 mm long:

thickness of adhesive layer = 0,2 mm

10% fiber length + 0.2 mm

fiber length + 2.0 mm

= distance between mat and screen 2,4 mm

Steps of MC-Flocking



By means of a high- voltage generator, individually adjustable for every flock colour, an electrical field is build up. By means of the high-voltage the flock fibers shoot vertically into the adhesive through the open mesh of the corresponding flocking screen, where they will be fixed. Colour after will be flocked with exact registration due to the screen arrangement at each cycle.

As pallets we recomend to use aluminium pallets with a perfect smooth surface. The aluminium pallets are earthed so that the electrical charge is grounded.

Adhesive coating

It is very important to keep in mind the thickness of the adhesive in order to obtain excellent quality regarding abrasion resistance. In order to get the flock fibers well- fixed, 10% of the fiber length are to used to enter the surface coat of the base material. Naturally, the adhesive must also reach the Mat - base in order to obtain an excellent abrasion resistance, tha adhesive consumption- depending on type and structure of the Mat- for full surface coating is about 200 - 300 g/m². As flock adhesive we recommend an acrylic dispersion especially mixed for this purpose.



Flock fiber

As flock it is recommended to use polyamide monofil fiber with 22 dtex and a length of 2.0mm. Consumption for full surface coating is approx. 200-300 g/m². The climate within the flocking space is very important. It is recommended to work at a humidity in the air of 50 - 65% rel. and at temperature of approx. 20 -24°C within the room. The flocking tests with the recommended testing equipment are to be effected under the same conditions. It is recommended in the same room.

It is important to take care that the flock fibers, which are used a second time, are not contaminated with foreign particles (e.g. adhesive).

Also the high- voltage has a direct influence on the flocking result:

- a) high-voltage too low = flock acceleration not sufficient,
inferior flock fiber orientation,
insufficient fixation, inferior resistance
- b) high-voltage too high = spark flash, removing of flock fibers already
settled into the adhesive - contamination
of the dosing system

Important : The high voltage must be adjusted individually to each flock colour. For this purpose high - voltage generators with variable adjustable high-voltage are used.

Dosing of the flock fiber quantity:

In case too much flock fibers will be dosed at once, the electrical field will be over- loaded- resulting in flock fiber clouds (also known as "beards"). This will result in the insufficient

flock density, inferior fiber orientation as well as a stained flock surface. Therefore, the dosing quantity must be adjustable.

Requirements to the flock fiber for the MC- flock procedure:

The parameters as to cutting precision, how to avoid overlengths and straight shapes are absolutely important!

How to create a motif:

The graphic design of a motif must "correspond to the flock fiber". The width of the lines corresponds preferably to the double flock fiber length in order to guarantee sharp lines and abrasion resistance. The Adhesive-film has to be 1-2% smaller than the outline of the Flock-film.

Drying process:

Advices from the adhesive manufacturer must be absolutely respected. It is necessary that the requested temperature for drying and condensating applies directly on the motif (temperature of the object.)

Only when the water is vaporized, the temperature within the adhesive coat can exceed 100°C and the curing of the adhesive can start. The water steam and the condensate must be carried out of the drier. If not, the air within the drier saturates and cannot take up any more humidity. This will result in the water spots and mainly in lack of abrasion resistance. The higher the air speed, the faster the drying process.

Hebbecke Textildrucksysteme produces discontinuous as well as continuous drying and condensating equipment.

Cleaning:

Final cleaning of surplus flock will be after drying and curing process. After cooling and absorption of humidity there are no problems to clean the textile.

A combination of shaking off, tapping and sucking will bring the best cleaning results. Our cleaning machine type MATCLEAN-PLUS fully meets the necessary requirements.

Storage of the material**Flock fiber:**

The flock fibers are to be stored in the polyethylen bags in a room without direct sun-beams. The climate must correspond to the one within the flocking room- approx. 55-65% rel.air humidity with a temperature of approx. 18- 24°C. Furthermore, the advices of the flocking fiber manufactureres regarding the max. storage are to be kept in mind.

Adhesive:

It is important to close the adhesive container after use. Storage at normal room temperature (approx. 18-24°C.).

Screens:

The adhesive screen is to be cleaned immediatlely after use with water (cold water) and - if necessary- to be cleaned with an appropriate solvent, in case the surface has dried up. After the cleaning process the screens must be dried.

The flock screens are to cleaned from the surplus flock and stored at normal room temperature at a dry place.

Last but not least we can state that with the machine type Versaflock of Hebbecker Textildrucksysteme together with the existing know-how and the corresponding materials, the flocking of textiles has been practiced for years without any problems- and for newcomers it does not mean an adventure to start with this technique.

For any additional detailed information we ask you to get in touch directly with HEBBECKER

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