

## **What is StitchTuft?**

StitchTuft is a new look in the textile industry. It is an extremely soft pile made of countless small hairs of yarn placed side by side.

## **How is StitchTuft manufactured and which machine is used?**

We named the new machine TuftMaster, as under technical aspects the process resembles tufting which is known from carpet production. The StitchTuft is applied on the fabric to be finished by means of a special machine which looks like an embroidery machine.

## **How does the StitchTuft process work?**

Compared to traditional embroidery, StitchTuft is not prepared on the visible face of the fabric but on its backside, i.e. the embroidery material must be placed on the TuftMaster with the future visible side pointing to the bottom. The embroidery head, as usual, moves the yarn through the fabric by means of the needle. But the loop which - like in normal embroidery - develops on the backside, is not connected with the lower thread but cut by means of a cutter. In this way, two small "pins" or "hairs" develop by each cut. These hairs are later sheared to equal lengths. A layer of puffy-like foam material is however placed under the embroidery material for the temporary fixing of the threads.

## **What is the technical difference between the TuftMaster and an embroidery machine?**

Primarily, the cylinder arm of the normal embroidery machine is replaced by a new special unit. This device cuts the loop developed when penetrating the fabric so that two loose ends emerge. They form the basis for the soft pile.

The embroidery head shows two further modifications. As no bobbin thread is required for the StitchTuft process, the traditional thread take-up lever unit is not required. Furthermore, the upper thread monitor and the thread tension unit are modified, because the thread tension is very low in case of StitchTuft.

## **What is the maximum height of the pile?**

The height of the pile depends on the height of the foam placed under the embroidery material. At first sight, this thin PE foam layer looks like the "Puffy" used for 3D embroidery. It has two functions. First, it fixes the inserted threads in position. But for this purpose, the PE foam must be more rubber-like than usual "Puffy". To keep the yarn in its position, the foam has to contract after stitching and hold the thread. In addition, the pile height depends on the height of the foam. As the threads are cut to the height of the "Puffy", the pile of the StitchTuft depends on the thickness of the "Puffy" – normally 2 to 5 mm.

## **How do you fix the StitchTuft?**

Before the foam layer can be stripped off and the finished StitchTuft appears, the threads which are first kept only by the "Puffy", must be fixed on the backside. For this purpose, the threads are bonded on the backside. Depending on the later use of the fabric, different methods are applied. At present, best results are achieved with glue powder. If the condition of the backside of the fabric is not important, adhesive films can for example be used.

## **Can StitchTuft be washed?**

Yes, fabric with StitchTuft finish can be washed at 40°C. The strength of the pile and fixing are not affected thereby. Dry-cleaning is also possible.

## **Can StitchTuft be ironed?**

The StitchTuft finished areas on the face and backside of the fabric should not be ironed.

## **Can StitchTuft be dried in the tumble-dryer?**

This is possible, too. But as in case of all other textiles, the durability of the fabric is shortened by the thermal and mechanic stress.

## **How much yarn is consumed?**

In case of StitchTuft, the yarn consumption is significantly higher than in traditional embroidery. The normal stitch length of the StitchTuft is about 1 mm. The yarn consumption amounts to approximately 25 mm. In normal embroidery, only 1.6 mm of yarn are required for the 1 mm stitch.

## **Do you use a special yarn?**

Polyester yarn is most suitable.

## **How many stitches are made per minute?**

At present, up to 850 stitches/minute are made.

## **Do you need a special shearing machine?**

A powerful, high-performance shearing machine should be used which does not clog caused by the high amount of cut yarn ends. At present, we use an industrial shearing machine which on request, we can offer to you.

## **Is special maintenance/cleaning required due to the high amount of cut yarn ends?**

The special unit of the machine should be cleaned at regular intervals to ensure the smooth operation.

## **Is a later fitting of the StitchTuft unit possible?**

In theory, this is possible, but not realized in practice, i.e. always a new machine has to be purchased.

## **What is the maximum number of heads of the StitchTuft machine?**

At present, machines with up to four heads are planned.

## **How do you digitize for StitchTuft?**

Punching for StitchTuft shows only few differences. No tack and lock stitches are required. The stitch length and density is between 1 mm and 1.4 mm. No under-layer and connection stitches are made, if possible.

## **Do you need a special punching program for StitchTuft?**

No, any customary punching program can be used.