Abstract

Water-based cool transfer printing technology has developed very fast over the last two years in China for both natural and synthetic fiber. It has high production yield, low production cost as conventional rotary and flat screen printing. Printing of super thin polyamide woven and knitting fabric (8D, 15D, 20D) have encountered many problems by conventional rotary and flat screen printing technique as well as digital inkjet printing.

This paper describes the optimization of transfer paper, wet pre-treatment and transfer printing equipment and dyestuffs requirement for cool transfer printing on polyamide fabrics. By integration of all these important factors, NEWTECH COOLTRANS printing system has successfully commissioned for mass commercial production for super light down jacket, e.g. Uniqlo ultra light Premium down jacket.

Coating weight on transfer paper:
Figure 1. The relation of releasing layer coating and printing quality. The Green dot line corresponds to the transfer rate of dye, red dot line corresponds to the printing quality. The printing quality was evaluated by visual inspection (eyes). Quality of printing on original paper is set as 100, and the standard of qualified product is 90.

The evolution of equipment.

![Schematic diagram showing the evolution of equipment](image)

- Single rolling point
- Symbelt Blanket belt with multi rollers

Figure 2. The evolution of cool transfer printing machine.

Example of commercial article made of 20D super thin nylon fabric:

![Uniqlo’s Ultra Light Down Jacket](image)

Figure 3. Uniqlo’s Ultra Light Down Jacket

References

2. BOWEN Zhong, BAOQING Xu. Roll transfer printing device of cold transfer printing machine[P]: China CN200520044827.9, 2005-09-06.