Technological Highlight

Mar 2025

10 and 20 Denier Fine Yarn Successfully Processed on CCI Machines

Highlight: fine filament yarn processing

Products: Evergreen II (Weaving)
LUTAN (Warping)
Taroko (Sizing)

[Market Challenges]

High-density, lightweight fabrics serve a wide range of applications, including packable jackets, industrial uses, and more. These fabrics are made by fine filament yarn, which enhances textile density and overall performance. However, handling very fine denier yarn presents unique challenges due to its delicate properties, making it difficult to process efficiently. As demand for such fabrics continues to rise, many users are seeking reliable solutions. CCI offers a range of high-performance solutions across various sectors in fine filament yarn processing to meet your specific needs.

[CCI Sampling Solution]

Precision Warping with LUTAN

The first key to overcoming the challenge of handling fine yarns is to produce a smooth and durable warp yarn. To meet the stringent requirements of 10d and 20d denier filament, we have chosen LUTAN, renowned for its innovative "Ring" warping design. This unique mechanism features a rotating "Ring" that directly winds the fine yarn onto the drum in the precise position. Once wound, the yarn's position is securely fixed, minimizing the risk of uneven tension caused by inconsistent force distribution.

Additionally, CCI's "Ring" warping differs significantly from traditional belt warping. Unlike belt warping, which can generate friction between the yarn and machine components, "Ring" warping eliminates this friction as the ring moves across the drum. This significantly reduces yarn breakage and damage, ensuring superior warp quality. Moreover, conventional warping machines require a large number of bobbins and creels, making setup and material handling more complex. In contrast, CCI's single-end warping technology requires as few as one bobbin to complete the warp yarn, making it particularly well-suited for short-run warp beam production.

Efficient Sizing with Taroko

For efficient sizing of small batch quantities, we selected CCI's Taroko, which features intelligent process control throughout the entire operation. The drying chamber is specially designed to maintain uniform tension, preserving the natural properties of the yarn, particularly delicate fine denier filament yarn. Additionally, each drying chamber is equipped with an independent hot-air drying blower, ensuring precise temperature control for each unit. Operators can individually adjust speed and temperature settings for each spindle via an intuitive touch-screen panel.

Taroko - Multi-spindle Sizing Machine

Taroko is highly effective in handling fine and delicate yarns, significantly reducing the risk of breakage or damage during the sizing process, thereby enhancing yarn quality and production efficiency.

Advanced Weaving with Evergreen II

Once the sizing and warping of the fine filament yarn is complete, the next critical step is weaving, performed on the state-of-the-art sampling loom, Evergreen II. Designed for precision and efficiency, Evergreen II ensures seamless coordination of all movements through a fully computerized system with independently controlled motor modules. This sophisticated setup guarantees highly accurate motion control, enabling superior handling of various yarn types, particularly fine and delicate filament yarn.

By optimizing weaving quality, minimizing material waste, and enhancing production efficiency, Evergreen II is an ideal solution for high-precision textile applications, meeting the demands of modern fine yarn weaving with exceptional reliability and consistency.

Evergreen II - Sampling Loom

[Results]

In conclusion, we have successfully processed 10 and 20 denier fine filament yarn using CCI's state-of-the-art machines, demonstrating exceptional precision and reliability. From warping and sizing preparation to the final weaving process, our results are on a par with those achieved by mass production equipment. CCI's solution demonstrates the capability to produce fine yarn fabric with warp density of 200 EPI and weft density of 210 PPI.

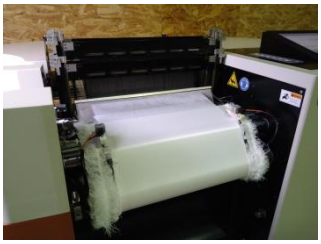
Moreover, CCI's solution can meet a wide spectrum of weaving requirements beyond these initial specifications. Should you have similar requirements or unique textile challenges, please do not hesitate to contact us. We are confident you will find that CCI has the capability to create high-quality substantial textile pieces tailored to your specific needs.

[Machines Recommended]

Evergreen II | Sampling Loom

Quick Facts:

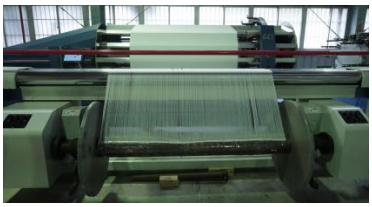
- Warp Density: 200 EPI
- Weft Density: 210 PPI
- Warp/Weft Yarn Type: Nylon
- Yarn count: 10D/5F
- Weave: Plain



LUTAN | Single-end Warping Machine

Quick Facts:

- Warp Density: 200 EPI
- Warp Yarn Type: Nylon
- Yarn Count: 10D/5F
- Sized



Taroko | Multi-spindle Sizing Machine

Quick Facts:

- Sizing Speed: 100 M/min
- Yarn count: 10D/5F