

Nu-Torque™ Singles Ring Yarn Technology is a mean to produce singles ring yarn of low twist and high strength with reduced residual torque that can be woven and knitted in fabrics with very soft handle, low spirality, good strength and pilling performance. It can develop low torque yarn products such as low torque singles ring yarn, slub yarn, elastic core-spun yarn, finer tabular yarn as well as cotton sweaters, T-shirt, denim and towel. The technology can be applied on cotton and worsted spinning systems.

扭妥™ 低扭矩環錠單紗技術是一種新型紡紗技術，可製造低捻度、高強度及低殘餘扭矩的單紗紗線，所生產的梭織及針織織物表面平整光潔、手感柔軟、堅牢耐用，並且可提高織物的抗起毛球特性。經這技術製造的產品包括低扭矩環錠單紗、竹節紗、彈性包芯紗、高支空芯紗、棉質汗衣、T恤、牛仔布及毛巾。這技術可應用於棉紡及精紡紡紗系統。



Application 應用

- A physical manufacturing method to produce torque balanced singles ring yarns in a single step.
- A false-twister and related components for the short staple yarn to produce low torque yarns in existing spinning mechanism.
- A control mechanism of yarn residual torque and a method to control yarn tension by adjusting the speed ratio through a mechanical device.
- Production of yarns at a range from 7Ne-100Ne (~6tex-85tex) with twist level 25 - 40% lower than traditional ring yarn.
- An electronic control system was developed under the 5th generation of the Nu Torque technology which enables the ring spinning frame to produce standardized and quality Nu Torque yarn.
- 在傳統環錠細紗機上安裝一個簡單的裝置，通過物理方式一步得到扭矩平衡單紗。
- 基於現有環錠紡紗工藝，加安裝假捻裝置及相關組件，賦予紗線較低的殘餘扭矩。
- 通過一套機械裝置來調校速度比，即可控制紗線的殘餘扭矩及紗線張力。
- 適合紡製比傳統環錠紡正常捻度低25-40%的7Ne-100Ne (~6tex-85tex) 紗線。
- 第五代技術增添電子控制設備，進一步加強生產監控，優化及統一扭妥紗線的品質。

Industry Benefits 業界效益

- Yarn production cost: 24-40% increase in productivity because of lower twist level at the same yarn strength; 10% saving as no yarn plying is needed.
- Finishing: 15-20% saving on finishing treatment needed for the conventional cotton fabric.
- Knitting: 10% saving in knitting cost due to lower spirality and clear surface with symmetrical loops.
- Energy saving: saving around 337 units (kilowatt hours) of electricity per one ton of yarn produced.
- Environmental-friendly: no chemicals, no water and steam required for production.
- Quality: cashmere-like soft handle.
- 紗線生產成本：由於捻度的降低，生產力提高24-40%；無並捻，可節省10%的成本。
- 加工：比較傳統棉織布，由於上染容易，能節省染料的使用，因此在後整理工序可節省15-20%的成本。
- 針織：針織物線圈對稱，歪斜情況得到很大改善，布面平整，織造成本可節省10%。
- 能源節省：每製造一噸紗可節省337單位（千瓦時）的電能。
- 環保：純物理生產過程，不添加任何化學品，無廢水廢氣。
- 產品品質：具有獨特的羊絨般手感。

Technological Breakthrough 技術突破

It is a major breakthrough in yarn manufacturing, which provides the means to produce singles ring yarn. The technology brings optimised processing parameters for spinning, weaving, knitting, dyeing and finishing as well as improvement to the overall throughput of a spinning factory by improving bottleneck operation in spinning process. It is estimated that the overall productivity of a spinning operation will be enhanced by 20-40% with lower production cost and better product quality.

這是紡紗技術在紗線生產原理上的一項重大突破，通過研發假捻裝置，獨創新型結構的低扭矩紗，優化紡紗、梭織、針織、印染及後整等工序。該技術為紡織業帶來的進步，可解決紡織廠在生產過程時的瓶頸問題。使用該技術後，估計整體的生產力可以提升20-40%，同時可有效降低生產成本，提高產品品質。

Licensing Details 獲取專利

A non-exclusive licence of production and installation of nu-torque yarn device on spinning machine for the production of low torque singles yarn.

非獨家專利授權許可生產及安裝扭妥紗附件裝置於傳統環錠細紗機上，生產低扭矩環錠單紗。

Funding
Organisation
撥款機構



Research
Institution
科研機構



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