Shanghai Sunking Industry inc

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CNC CORE SPUN YARN DEVICE

Shanghai Sunking Industry inc

Forge ahead and
innovate constantly

COMPANY PROFILE

Shanghai Sunking Industry inc

Pioneering and enterprising, continuous innovation, excellence, innovation

Shanghai Sunking Industry inc in Huangtang, XuXiake Town, Jiangyin City, Jiangsu Province, with convenient transportation and superior environment, which is a good place for Chinese and foreign businessmen to cooperate and develop.

The company mainly manufactures detachable spandex core–spun yarn device, low twist spinning device, spandex core spun yarn breaking device, Siro spinning frame transformation, nylon & spandex double core spun yarn device, small PV system, bobbin hanger, godet wheel and various plastic hardware accessories, etc.

The company has a strong design and development force on basis of expanding the scale of enterprise. With advanced technology, high quality products and the most satisfactory services, we are looking forward to cooperating with you sincerely and creating value.

We are always making unremitting efforts!

CATALOG

Part one
Types of core-spun yarn

The basic raw materials of core spun yarn are mainly cotton, chemical staple, wool pure spinning or blended spinning, and the inner core-spun yarn is chemical filament or special filament.

The most commonly used are shown as follows:

1. High elastic and high elongation materials, such as spandex. This kind of fabric is appropriate to wear and fitting the body; it has good aesthetics and comfort.

2.Filament materials with certain elasticity, such as commonly known as low elastic yarn and high elastic yarn, often include CM800, T400 and PBT ,etc. This kind of fabric has the effect of weak elasticity and micro elasticity, and has certain comfort and considerable shape retention. In recent years, the popularity is increasing rapidly.

3. Flexible non-elastic materials, such as nylon FDY and terylene FDY, etc. have good dimensional stability, anti-wrinkle & easy care and drapability.

4. Other special core filaments, such as metal filament, glass fiber filament, high strength filament and special colored filament, are used for special purpose fabrics.

5. Combined with the above characteristics of different core-spun yarns, the double core yarn is developed. That is to say, two filaments with different properties are used as the core filaments simultaneously to give full play to their respective characteristics and produce a strong complementary effect. For example: Cotton wrapping PBT with spandex makes use of the combination of high elasticity of spandex and low elasticity & shape retention of PBT to make spandex stretch within a certain range, so as not to exceed the elastic range or cause spandex fatigue, and keep clothes comfortable and beautiful. Recently, the so-called "three-core yarn" has been developed, i.e, after air covering with spandex and filament, it is used as core yarn together with spandex.

Part two
CNC core spun yarn device

It adopts double guide roller, which is driven by front roller chain or servo motor. The latter is convenient to adjust the process drafting of spandex yarn, and can set any value. At present, it is adopted by numerous yarn mills.

1、Polyurethane core spun yarn device

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The spandex cake is placed on the guide roller and enters into the front roller nip through the guide roller. The guide roller is made of super hard aluminum alloy material, and can be equipped with single–spindle double wheel or single–spindle single–wheel pressure bar (filament–pressing rod) according to the needs.
The connection form of guide roller includes key–pin type and detachable type. Guide roller materials commonly used are: Stainless steel clad pipe, grooved aluminum alloy pipe and high precision chromium plated pipe, etc.

2、Low elastic and non elastic core spun yarn device

2.1

There are many forms for the filament rack part: 1. Three or four rows of filament–inserting rods are built by heightening the column, and the filament barrel is directly placed on the filament–inserting rod; 2. The flat plate is laid above the original bobbin hanger frame, and the yarn–guide frame is installed (commonly known as built–in type); 3. Bobbin–hanger type, i.e, hanging on the roving bobbin hanger; 4. If the package is in the form of yarn cake, it can be put into production by setting appropriate tension on the spandex spun–core guide roller; 5. Cross insertion type, at present, it is basically eliminated.

2.2

Tension control part 1. Tension disc, and supplemented by ceramic positioned. After the filament is drawn out from the bobbin, it passes through one or two tension discs to eliminate the filament kink and give a certain tension. The tension changes randomly, and the difference between the spindles is large and unstable. 2. Active drive type, adding active drive part on the basis of tension disc, tension can be controlled and adjusted, including chain drive type and motor drive type. It is composed of high precision guide roller, belt roller and guide hook. The chain guide roller is driven by the front roller chain, and the motor type is driven by encoder and motor. Based on the filament feeding speed is fast, close to the front roller linear speed, in order to ensure the smooth operation, the transmission connection of high–precision guide roller adopts a special way.

3、Double core spun yarn device

The above two devices are combined into one. When spinning, a spandex and a filament are introduced into the front roller and the front belt roller nip of the spinning frame through the guide wheel, and wrapped by the outer fiber in the twisting triangle area.

Part three
Production practice of core spun yarn

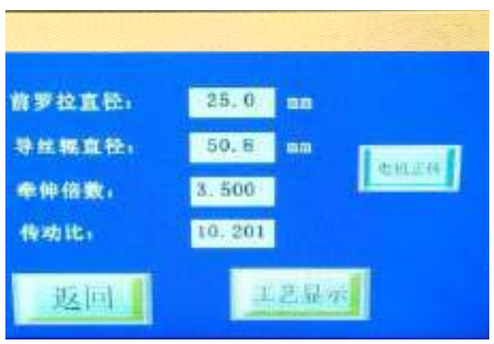
Rich experience has been accumulated in the use of core spun yarn devices in yarn mills

1、Process management

1.1

The selection of spandex yarn should be based on the fabric requirements to choose the appropriate specifications and brands, with the required drafting multiple; the specification includes the thickness, whether matted and so on. The front roller chain type should pay attention to the correct process sprocket and reliable assembly, and the servo motor type input process data should be in the charge of a special person. After the normal start up, the actual drafting multiple can be calculated by detecting the actual speed of the front roller and the guide roller, which should also be consistent with the process requirements. The yarn content can also be calculated by the yarn drawing and weighing method for verification. In daily management, the machine should be inspected or checked regularly to prevent the machine from running with hidden faults.

Filament also needs reasonable selection of varieties and specifications, including D number, F number, twist direction and stress. For example, the thickness should be appropriate; otherwise the covering effect will be affected. If coarse filament is selected for fine count yarn, the outer yarn randomness will be absorbed by the whistle–pipe due to the small amount of wrapped fiber and insufficient cohesion between the fibers. The situation is more serious when the spinning tension is large and the spinning angle is large, such as before the full yarn doffing. For dry yarn sliver, its strength is seriously damaged with yarn loose and hairiness increasing. Generally, the filament content doesn't exceed 25%. Secondly, the filament tension setting needs to be explored. According to the characteristics of the selected filament, the mechanical structure and mechanical state shall be selected to match. If it is a simple tension disc type, the tension of the filament held by the front roller and the front belt roller mentioned above is free unwinding or rotating unwinding, and the tension changes randomly and cannot be adjusted; the active device can detect the tension under different drafting values with a tension meter, and select reasonably; the drafting empirical value is generally between 1.01–1.07. If the tension is too small, it will lead to poor covering, yarn holding and even loose kink; if the tension is too large, it will lead to fiber loss in the twist triangle area, the yarn will be wrapped, hairiness and strength will be reduced, and Siro spinning will be more serious.



1.2 Other process parameters should also be adjusted accordingly. The twist factor of spinning yarn is higher than that of conventional yarn, which is conducive to the covering effect, generally up to 10–15%. The steel ring shall be selected to match reasonably and the cycle shall be managed strictly. The spindle speed should be appropriate, especially to prevent the core yarn elasticity from being damaged or even fusing （fuse yarn) due to too high temperature of steel ring, especially for the varieties with low moisture regain, such as pure terylene. The roving bell should not be loose to prevent roving sliver shaking. If it is Siro spinning, the bell spacing and spinning tension should not be too large, otherwise the twisting triangle is seriously biased to one side, resulting in another filament wrapped and more fiber loss.

1.3 With core spun yarn equipment, filament–wrapped yarn (Sirofil spun) has been developed.

2、Equipment management

1. For the guide wheel, many spinning mills choose the single–spindle double–wheel device, in which the spandex broken yarn can be found in time when the spandex yarn goes through the double wheel. Practice has proved that even if the single package of spandex passes through the double wheel, the position of the yarn in the front nip is more stable, and the advantage is more obvious in the small multiple drafting. The filament only passes through the front wheel. Generally, the installation position of the front wheel is to properly rub the front belt roller when the core yarn enters the nip.

2. It is very effective to use self–stop device for broken core yarn to eliminate the hidden trouble of hollow yarn. At present, some advanced manufacturers use imported equipment.

3. Check the position of the core yarn every day. At present, the method of aligning the core yarn with the roving centre, or Z twist slightly to the left and S twist slightly to the right is generally adopted. Siro spinning Z twist is to align a piece on the left. When it is impossible to confirm whether the core position is correct or not, it is possible to observe the position of the core yarn in the twist triangle area by means of filament–pressing method, or even breaking several yarns for observation and experience.

4. The speed detection and alarm device of guide roller is installed to monitor the speed at the farthest end of all guide rollers in real time. In case of any defect, the alarm will be given in time according to the set threshold. Some manufacturers make eye–catching marks on the guide roller far away from the power end, and the two or four rollers on both sides should always be synchronized.

5.Pay attention to the service cycle of the steel ring, especially to prevent the seriously burned steel ring from spinning out the lost elastic yarn and broken yarn; install the encoder, the synchronous belt, etc. with proper tightness, and often check at ordinary times; keep the yarn guide roller clean and avoid hooking, carrying and winding yarn.

6. Remove the traverse device from roving transverse flat iron and fix the transverse flat iron firmly.

7. When spinning is stopped for a long time, take down the filament–pressing belt roller and stop the encoder to prevent unnecessary loss and deformation.

3、Operation management

1. After the end of spun yarn is broken, to join the yarns usually adopts tube replacement or tube winding method, especially single wrapped spandex. The main purpose is to prevent the coreless or multi–core yarn (brought out from the whistle–pipe) at the joint from missing cutting and weaving into the cloth surface. With the help of both hands coordination for filament varieties, use the yarn scissors when it is not proficient to join the yarns and the joining efficiency can be improved. After being proficient, many manufacturers now adopt the yarn pinching and head hanging method, which is fast and efficient.

2.The spinner must deal with the core shift, broken filament and filament–missing yarn in time, and those that can't be dealt with thoroughly at the moment should be placed separately. After that, a special person will be assigned to deal with it.

3.Keep the guide wheel clean & tidy, and prevent guide groove from winding filament with fiber flock and dust cap end cover from winding fibre flock, etc. Keep the wheels flexible.

4. When doffing, stop the machine and check spindle one by one quickly to prevent the hollow and core–shift yarn from flowing into self winding.

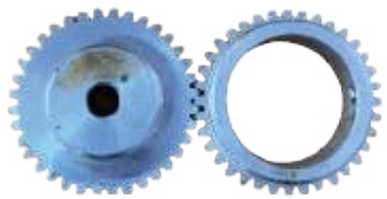
5. When changing filament, generally, the whole machine is changed uniformly, and both sides of the machine are carried out at the same time, so as to prevent the center of gravity from being biased to one side and resulting in potential safety hazards.

6. In principle, the yarn waste on bellows will not be reused
Self winding adopts twisting for joining yarn ends, which has better knotting effect, but the cost is very high, so it is only suitable for fine–count yarn. At present, to join yarn ends by air twisting is widely used, which generally has no elasticity and has the filament and yarn end exposed. Some defects will be formed on some fabrics, and the double core yarn is more prominent.

2、On self winding knots

It is an important topic for the mill to reduce the yarn defects in each process. Before the knotting problem is solved, more attention should be paid to the management of yarn defects. And meanwhile, the advantages and disadvantages should be considered when setting up the self winding electric cleaning process, and the slight harmful yarn defects such as A1 yarn defects can be appropriately relaxed to reduce the number of cuts as far as possible.

encoder



Encoder aluminum gear

Guide wheel head

Antistatic single head tensioning wheel

Gearbox gear left (right) rotation 110t

Drive box motor wheel left rotation 40t

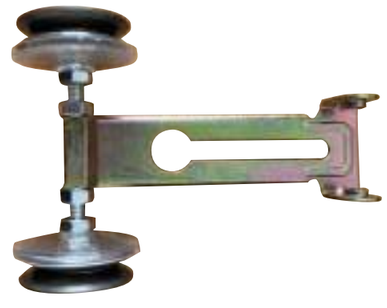
Anti static conductivity yarn pole connector

Antistatic suspender seat

Single leg suspender seat

Yarn guide rod connector

Antistatic double head tensioning wheel



Aluminum alloy guide wheel

Ar cradde gvide roller

Upper seperafor

Plastic tensioning wheel bracket

Self aligning bearing pedestal

Inotor pwlly wheel 38T

Seperator

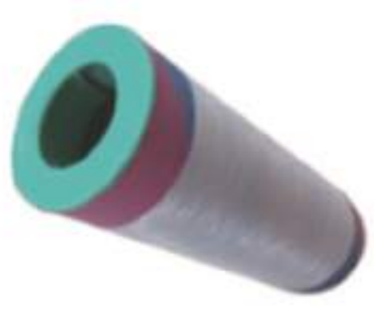
Lower plastic screen

Tensors

Plastic tensioning wheel single head

Plastic lensioning wheel double ends

Filament spacer



Filament positioning cylinder

Polyurethane core spun yarn device

Low elastic and non elastic core spun yarn device

Double core spun yarn device