

SHIVPRIYA TEXCHEM · KNOWLEDGE SERIES

Siro Spun.

Two rovings, one passage, ply character.

Siro spinning feeds two rovings side by side into a single drafting zone and twists them at one spindle. The result behaves like a two-ply yarn but never passed through a doubling frame — and in worsted weaving it made sizing optional.

2 → 1

two rovings converted into one yarn in a single spinning passage

Sizeless

the application that made Sirospun commercially famous in worsted weaving

~50%

reduction in hairiness against a comparable single ring yarn

Bridging world-class spinning mills and your needs, since 2003.

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CHAPTER 01

A two-fold yarn without a doubling frame

Conventional ply yarn is made twice: spin two singles, then twist them together on a second machine. Siro spinning collapses that into one operation by keeping the two strands separate through drafting and letting the spindle do the rest.



Both strands receive twist at the same moment — a self-locking two-fold structure

01 Two rovings creeled

Two roving bobbins feed one spinning position, spaced a few millimetres apart in the creel.

02 Drafted side by side

Both pass through the same drafting system but remain two distinct strands throughout.

03 Twist runs up both

Twist propagating from the traveller runs up into each strand individually, twisting them separately.

04 They converge

At the convergence point the two now-twisted strands are wound around each other by the same twist.

05 The structure locks

Strand twist and ply twist are in the same direction and mutually locking — the yarn cannot untwist.

Not the same as two-ply. In real two-ply yarn, singles twist and ply twist run in **opposite** directions. In Siro they run in the **same** direction. The structures are genuinely different, and so is the handle — which is why Siro is a substitute for ply in some uses and not in others.

CHAPTER 02

Why Australia built it

Sirospun came out of wool research, aimed squarely at one expensive problem: worsted warp yarn had to be two-folded and sized before it could be woven, and both stages cost money the trade wanted back.

STAGE	CONVENTIONAL WORSTED ROUTE	SIRO ROUTE
Spinning	Spin singles on a ring frame	Spin the two-fold structure directly
Doubling	Assembly wind, then twist on a TFO	Not required
Sizing	Size the warp before weaving	Often woven unsized
Desizing	Remove size after weaving	Not required if unsized
Result	Four operations and a chemical load	One operation

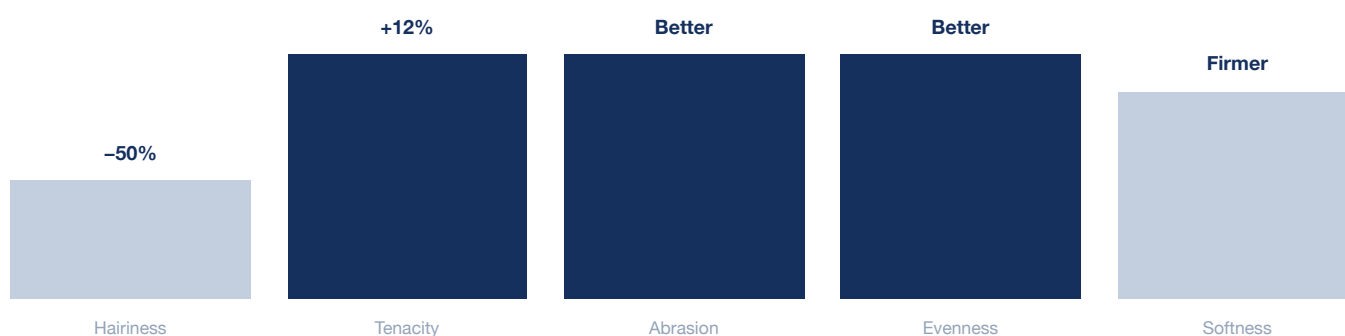
The saving was never really in the spinning. It was in **the three stages that no longer had to happen.**

CHAPTER 03

What the structure delivers

Siro yarn is smoother, stronger and more abrasion-resistant than a single ring yarn of the same count.

Against a genuine two-ply yarn the comparison is closer and more nuanced.



Siro yarn against a comparable single ring yarn of the same resultant count

AGAINST	SINGLE RING YARN	TRUE TWO-PLY YARN
Strength	Clearly stronger	Slightly weaker
Hairiness	Much lower	Comparable
Handle	Firmer, leaner	Less round, less full
Cost	Higher — two rovings	Substantially lower
Torque balance	Better balanced	Less balanced

CHAPTER 04

The strand spacing decides everything

Siro spinning has one setting that dominates all others: how far apart the two strands are held before they converge. Get it wrong and the yarn is either a single or a broken end.

01 Too close together

The strands merge inside the drafting zone and you have simply spun one thick single yarn.

02 Too far apart

Twist cannot run far enough up each strand; the convergence is weak and ends break constantly.

03 The correct window

A few millimetres, tuned to fibre length and count. Narrow, and it needs checking regularly.

04 Break-out protection

If one roving breaks, the remaining single must be detected and stopped — otherwise a thin single yarn runs into the cop unnoticed.

Strand spacing

The master variable. Set for fibre length and count, then verified at the spindle, not on paper.

Twist level

Slightly lower TM than the equivalent single, since the structure contributes strength of its own.

Convergence point

Its distance from the front roller governs how much individual strand twist is achieved.

Break detection

Essential. A single-roving run is the classic Siro defect and it is invisible until the fabric.

The classic defect. One roving breaks and the spindle carries on spinning a **thin single yarn** that is neither the right count nor the right structure. It survives to the cone, and it appears in the fabric as a fine stripe. Break-out sensing is not optional on a Siro frame.

CHAPTER 05

Where Siro spinning is used

Siro remains strongest in its original worsted home, but the principle has spread into cotton and blends wherever a two-fold character is wanted without two-fold cost.

END USE	WHY SIRO FITS
Worsted suiting	The original application — two-fold warp character with sizing eliminated from the route
Fine wool fabric	Low hairiness gives the clean, dry surface worsted cloth is judged on
Cotton shirting	A smoother, stronger warp than a comparable single, at less than two-ply cost
Linen & linen blends	Bast fibre hairiness is a chronic problem; Siro addresses it directly at the spinning stage
Denim	Siro and Siro-core structures give a distinctive surface and improved warp performance
Technical fabric	Where abrasion resistance and a controlled surface matter more than softness

- **Poor fit:** soft knitwear, where the firmer two-fold character works against the handle.
- **Poor fit:** very coarse counts, where the cost of two rovings is not recovered.
- **Poor fit:** anywhere a genuine balanced two-ply structure is specified by the buyer.

CHAPTER 06

Two rovings, and what they buy

Siro costs more to spin than a single and much less than a ply. Whether it pays depends on how much of the doubling and sizing route it actually lets you delete.

LINE	DIRECTION	DETAIL
Roving production	Higher	Two rovings per spindle doubles the load on the speed frame department
Ring frame output	Lower per spindle	One spindle produces one yarn from two rovings — output per spindle falls
Doubling	Eliminated	No assembly winding and no TFO stage. Usually the largest single saving
Sizing	Reduced or eliminated	The decisive saving in worsted; partial in cotton
Desizing	Reduced or eliminated	Less chemistry, less water, lower effluent load
Net position	Favourable	Where sizing can genuinely be dropped. Marginal where it cannot

Test the real claim. The Siro business case usually rests on **weaving without sizing**. Before committing, weave a trial warp unsized on your own looms. If the warp still needs sizing, most of the saving disappears.

CHAPTER 07

Siro-core, Siro-fil and the family

The basic principle — feed two strands, converge them under twist — extends naturally. Substituting one strand for something else produces a family of genuinely useful yarns.

VARIANT	WHAT IS FED	WHAT IT PRODUCES
Sirospun	Two staple rovings	The standard two-fold-character yarn
Siro-fil	One roving + one filament	Staple surface over a filament for strength; used in fine suiting
Siro-core	One roving + elastane	Stretch yarn with better core coverage than conventional core spinning
Siro-slub	Two rovings, one slubbed	Controlled fancy effect built into a two-fold structure
Compact Siro	Two rovings + condensing	Both technologies stacked; the smoothest staple warp yarn available

Once you accept that a spindle can take two inputs, the question stops being how to spin yarn and becomes **what to feed it**.

CHAPTER 08

Reading a Siro yarn correctly

Standard yarn testing was designed for single and ply yarns. A few readings need interpreting differently when the yarn is Siro.

TEST	HOW TO READ IT FOR SIRO
Count	Quote the resultant count. Confusion between component and resultant count is the commonest error
Twist	Measure ply twist; strand twist is not independently accessible in the finished yarn
Hairiness	Should be dramatically lower than a single. If it is not, strand spacing is wrong
Tenacity	Above a single, slightly below a true ply. A value near the single suggests strands merged
Evenness	Better than a single through doubling effect. A poor value indicates a spacing problem
Fault classification	Watch specifically for long thin faults — the signature of single-roving running

The one test that matters. Untwist a length by hand. A genuine Siro yarn separates into **two twisted strands**. If it separates into loose fibre, the strands merged in drafting and you have paid two-roving cost for a single yarn.

CHAPTER 09

Buying Siro yarn

Siro is a process claim that is easy to make and easy to verify — but only if you know what to ask for.

01 Confirm resultant count

Agree explicitly whether the quoted count is the resultant or the component count.

03 Request hairiness data

S3 should be roughly half a comparable single. This is the quickest proof the process is genuine.

05 Trial the unsized warp

If sizing elimination is the reason you are buying, prove it on your own loom before bulk.

02 Ask about break detection

Single-roving running is the defining Siro defect. Ask how the mill detects and stops it.

04 Do the untwist test

On the delivered cone, by hand. It takes a minute and settles the structural question.

06 Check strand-spacing discipline

Ask how often spacing is verified. It drifts, and when it drifts the yarn quietly becomes a single.

How Shivpriya reads it. We buy Siro on **long thin fault counts** more than on any other number. A mill running disciplined break-out detection shows it there first — and that is the mill whose Siro yarn will behave the same in month six as in week one.

IN CLOSING

One passage instead of four.

Siro spinning is a rare case of a process change that removes stages rather than adding them — doubling and often sizing both disappear. It is not a universal substitute for two-ply, and the strand spacing needs real discipline. If you are considering Siro for a warp programme, talk to us and we will start with the unsized weaving trial, because that is where the case is won or lost.

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