

4S SUSTAINABLE
SMART SOLUTIONS FOR
SPINNING
SUCCESS



COMBER LK69 SERIES



Versatile

LK69 Series

Comber LK69 Series with "PACT"; "SETS THE PACE", in the combing technology with a production of up to 2.1 Tons/day @ 600 npm. The kinematical linkage syntheses for synchronized and optimal movement of parts ensure gentle handling of heavier laps. The optimal selection of fiber moving path enables the machine to run at higher speeds without straining the fiber and ensures efficient removal of short fiber and neps.



LK69 S

**Highly
Efficient**

Specific Features

Drafting Over Coiler

- For consistent output quality at 600 npm

More Reserve Cans

- 2 reserve cans (600 mm can dia)
- 1 reserve can (1000 mm can dia)

Higher Production

- Up to 2.1 tons/day



Inverter Controlled Main Motor & Servo Driven Drafting Motor

- Less down time during process change and lesser inventory

Modular Construction

- Machine comes with 2 modules which is handy for easy installation

Flexible Variocomb

- Suitable for any process with option to remove 8 to 25% noil

Proven Combing Action

- 90° variocomb for smooth and gentle handling of fibers

Automatic Lap Transportation System (Optional)

- LTS reduces man power requirement and ensures uniform lap quality

Robust Technology

- Efficient linkage drive system for lesser vibration

High Speed Technology "PACT"

- Precisely Accelerated Combing Technology supports speed up to 600 npm and production up to 2.1 tons/day





High Speed Technology – PACT

High production of up to 2.1 tons/day is achieved by means of innovative design concept of "PACT" – Precisely Accelerated Combing Technology. This technology arrives at the best combination of the nipper and the detaching movement and ensures gentle fiber transfer from feed zone to the detaching zone. PACT supports maximum speed of up to 600 npm with reliable operation.

Headstock and Gear Box

The headstock and the gear box are so designed in order to run the machine at speeds of up to 600 npm (2.1 tons/-day). All the gears in the head stock are centrally located for better serviceability. Maintenance and user friendliness in terms of ease in access of components. The elements are precisely balanced for perfect swinging movement.

Top Nipper Motion

4 Bar linkage facilitates flexibility in the top nipper motion.

Comb Motion

Reduced combing acceleration of comb at 600 npm.

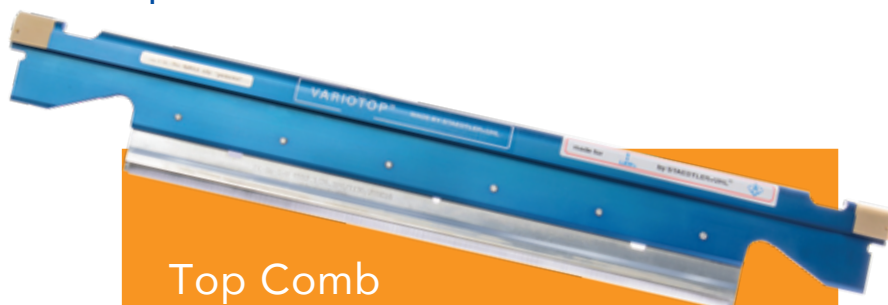
Patented technology

Detaching Roller Motion

Motion optimized for lesser acceleration at 600 npm.

Patented technology

Optimization and synchronization of the above leads to versatile and reliable operation of the machine at 600 npm.



Top Comb

The Top comb plays a major role in removing the short fiber. The number of needles in the Top comb depends on the fiber micronaire, the lap weight and fiber parallelization in the lap. If the fiber micronaire is less than 3.3, number of needles per centimetre in Top comb can be 29 and for micronaire above 3.3, 26 needles per centimetre are used.

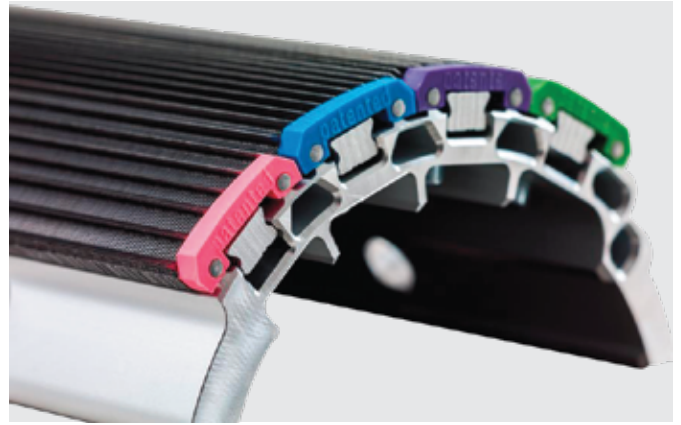
The mechanical self-cleaning of the Top comb is a result of the special geometry of the Top comb pin and a special coating of the surface of the pin.

Lesser Downtime During Process Changeover

Variocomb

The circular variocomb is one of the most important components on the comb. It exercises a very strong influence on raw material yield and thus also on the costs incurred. The variocomb is constructed with replaceable strips. In case of any eventuality: say, any accidents or due to the loading of fibers, the particular strip only needs to be replaced.

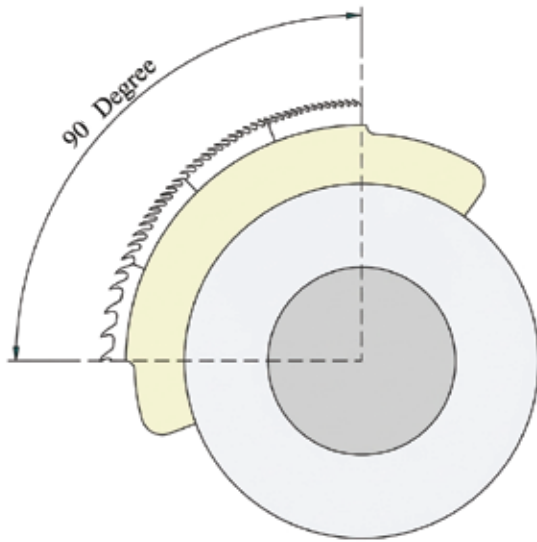
For lower noil requirement applications there is an option of variocomb with lesser PPSI. This brings the flexibility to spinners to achieve the required noil percentage depending on the process and end application.



Flexible

User Friendly

Cost Effective



Proven Combing Action

In comb LK69 Series for a given combing time, with 90° Variocomb – controlled acceleration and deceleration of comb without reducing the combing time for effective combing.

This results in efficient combing without fiber damages and fiber loss.

Combing Zone

The combing zone with its minimal movement of oscillating components ensures gentle combing.

- Light weight aluminum alloy nippers
- Uniform detaching loading
- Efficient removal of short fiber and neps
- Provision for both forward & backward feed control



Flexible Variocomb with gentle combing facilitates noil removal from 8–25%*

** Depends on raw material properties*

Simple Construction & Stable Design

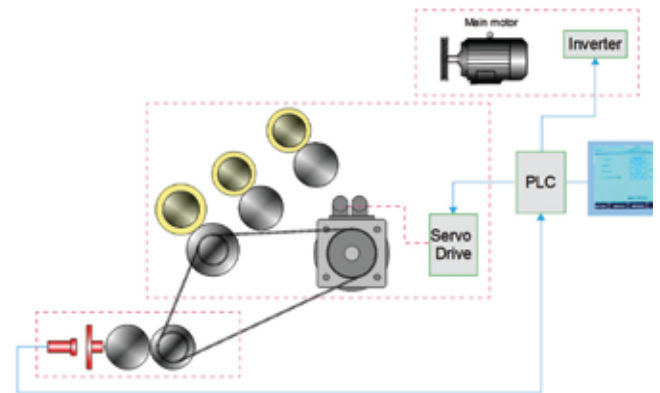
LK69 variants offered

LK69 S – Electronic drafting drive & inverter for main motor

LK69 M – Mechanical drafting drive

Inverter Driven Main Motor + Servo Draft Motor

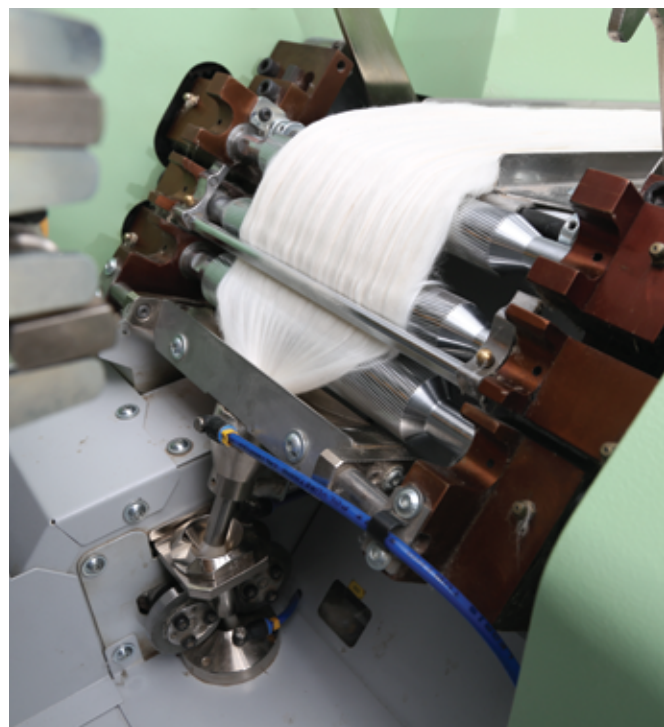
The latest additional feature in LK69 S combers are inverter driven main motor and servo driven draft motor. The delivery speed of the machine and main draft change can be altered through display itself.



The benefits of the system are:

- Less down time and more flexible during process change
- Reduction in inventory cost – Not necessary to maintain change gears
- Manpower reduction

Online quality monitoring with auto hank correction system



Piecing at only one place ensures better quality

Drafting System

Comber LK69 Series is equipped with 3/3 pneumatically loaded inclined drafting system placed over the coiler. This facilitates the direct entry of sliver to the coiler calender roller, thus ensuring higher speeds and efficiency.

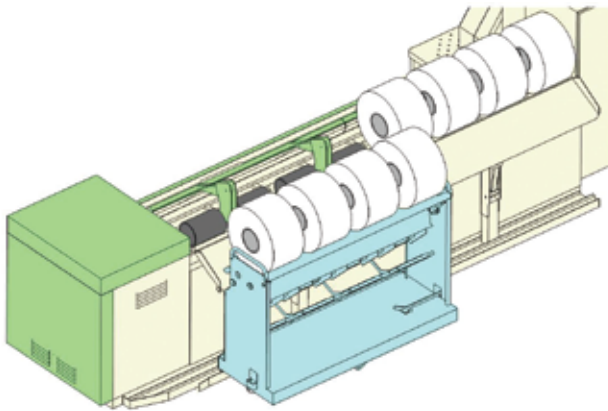
- Inclined 3/3 pneumatically loaded drafting system over coiler
- Lesser travelling distance and gentle handling of the drafted sliver
- Tension stretch to the drafted combed sliver is completely eliminated
- Toothed belt drive ensures noiseless performance
- Auto piecing assistance
- Built-in earthing stop motion in drafting load cylinder for better efficiency
- Effective single sliver stop motion

Hank Levelling with Sliver & Thick Place Monitoring



Coiler & Can Changer Arrangement

Comber LK69 Series is equipped with linear can changer arrangement with can size of 24" × 48" with 2 reserve cans and 40" × 48" with 1 reserve can at delivery provided in order to improve the efficiency. The drive system is simple and is enclosed and the elements are so designed for effective sliver compression. Trouble free performance is ensured through a separate pneumatic control panel.



Automatic Lap Changer

- Auto lap changing from trolley to comber
- Four or eight lap changing at a time
- Gentle handling of heavier laps
- Adaptability – To hold laps from Lap Former

Modular Construction

The installation time has been reduced by means of the modular construction of the machine. The entire Comber comes fully assembled in two modules. First module, the Drive Module covers head stock and eight combing heads. The Second module, the Delivery Module consists of the drafting unit, coiler assembly and suction hood.



Module 2

Drafting & delivery

Module 1

Head stock & combing heads

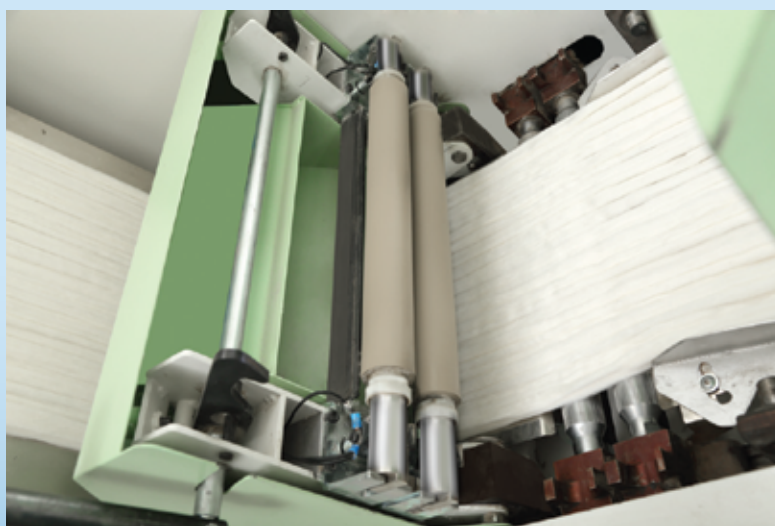
LAP FORMER LH20 S

The Lap Former LH20 S is the perfect partner for Comber LK69 Series to produce high quality laps. The machine with average delivery speed of up to 200 mpm (depending on raw material) with the production capacity of up to 680 kgs/hr and heavier lap capacity increases output at a lower cost. The state-of-the-art technology ensures uniform lap weight over the complete length of lap.



Drafting System

- 2/2 spring loaded drafting system with belt drive
- Reduced fiber movement at drafting ensures good batt strength and uniform/compact lap sheet – enables to run the machine at high speeds
- Servo drafting enables fine lap weight adjustments
- Gradual dia change in End bush seating area with HF Hardening to withstand load
- Top roller with strengthened arbor at End bush locating area ensures improved life



Unique single servo drafting system



Top-notch Quality

- PRO-IN control system for better lap preparation
- Unique single head drafting system with servo drive
- Full lap weight monitoring
- Lap weight levelling
- Compact and uniform lap sheet across the width
- Lap 1 mtr CV less than 0.5%

Efficiency up to 75%

Right lap weight throughout



Lap Levelling

- Draft altered throughout the lap build.
- Consistent in Lap CV%
- Noil consistency in comber

Lap Monitor

- Every lap is weighed and machine is stopped on crossing set limit.
- No need of manual checking of laps.

Highly Efficient

- Production up to 680 kg/hr, feeding to 6 combers @ 600 npm, 7 combers @ 550 npm
- Average delivery speed up to 200 m/min (depending on raw material)
- Minimum doffing time ensures higher efficiency and productivity
- Compact footprint

Minimum doffing time ensures higher efficiency and productivity



Simple Drives and Lap Building Mechanism

- Timing belt drives – Simple & highly efficient. Eliminates frequent maintenance (Lubrication, Chain length adjustment)
- New calender roller arrangement – Immediately after calendering lap is wound with minimum nipping distance between calender roller and lap roller – Prevents lap hairiness
- Self aligned positioning of lap roller with new Lap Roller System – Uniformity / Compactness of the lap sheet



Better Lap Appearance

With innovative unique single servo drafting system, the lap produced from LH20 S has:

- Lesser lap licking
- Lesser hairiness
- Better fiber cohesion

Easy Maintenance

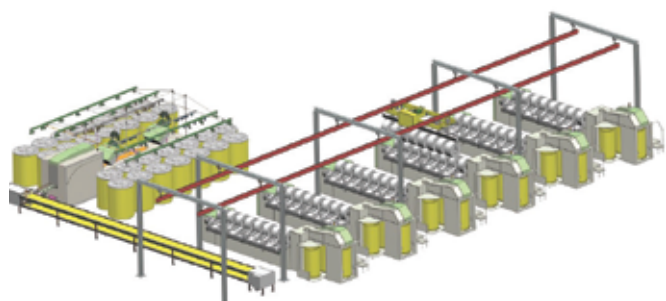
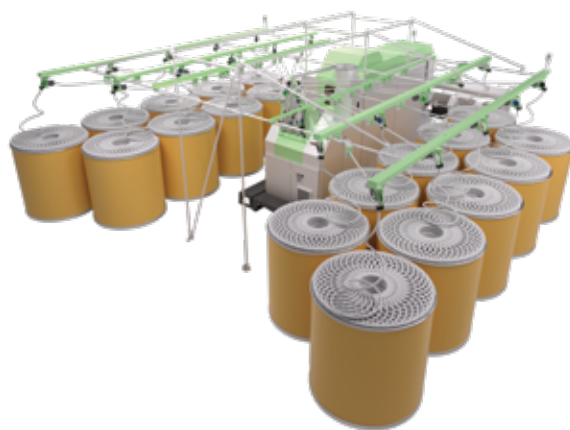
- No manual lap weight checking
- Lesser greasing points
- Lesser can handling
- Lesser number of buffing of top rollers

Kinetic Power Back up Technology

- Machine equipped with kinetic power back up for synchronized stopping of machine with lap continuity during power failure / disturbance.
- The user friendly electrical panel with touch screen display can be accessed easily. All the control, monitoring and service elements are built inside the panel.

Ease of Operation

- Ergonomically designed static creel for sliver feed
- Easy creel sliver breakage identification through lamp and display
- Creel sensor selection with respect to doubling is done through display



Automation Benefits

- Rationalization of work force (reduces manpower requirements to a great extent)
- Improves efficiency & productivity
- Waiting time for the laps on the Combers can be avoided

Lap Transportation System (LTS) (optional)

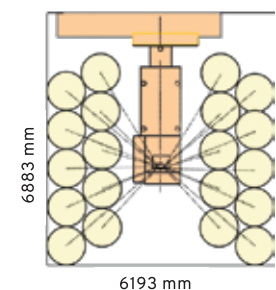
The Lap Transportation System improves the efficiency of the Comber and reduces the manual efforts involved in transporting the trolley to the Comber. Saves space needed traditionally to store trolleys, while allowing the operator to concentrate on more critical work.

- Lap Former is connected to Combers through a conveyor transport system.
- Upon request/signal from a Comber on nearing exhaust of the running laps, 8 nos. of full laps are transported through overhead rails to respective Comber.
- The empty spools from Comber is then transferred to the Lap Former automatically.
- The Lap Transportation System enhances the efficiency of the combing equipment and reduces the labour costs.

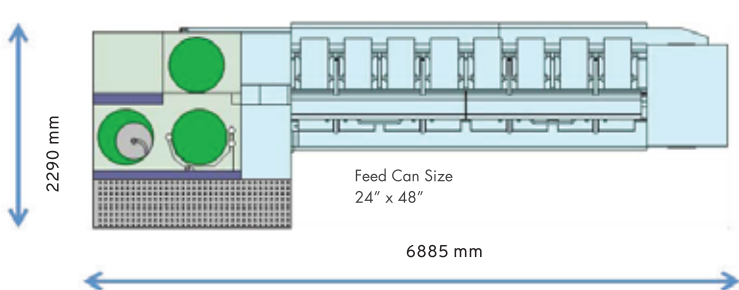
Upto 50% Man Power Reduction in Combing Section

Compact Foot Print

LH20 S



LK69 M/S



Comber LK69 variants offered

Features	Variants	
	LK 69 M	LK 69 S
Auto-piecing of sliver	✓	✓
Automatic can changer	✓	✓
Faster release of Top roller load during machine stoppages	✓	✓
Proven LDF3 S type drafting geometry	✓	✓
Sliver monitoring for single sliver missing	✓	✓
Closed loop digital control system on delivery sliver (hank levelling)	✗	✓
Inverter drive for main motor	✗	✓
Online Quality Monitoring System (+thick place monitoring)	✗	✓
S Draft (Servo motor for changing draft)	✗	✓
USB Interface	✓	✓
Connection to Spinconnect	✓	✓

Spinconnect 2.0

Digital Automation our Passion

Lap Former LH20 S & Comber LK69 Series can be integrated with Spinconnect 2.0, a web based monitoring and control application. The HMI details are transferred through Wi-Fi / LAN connection and all the parameters can be viewed and controlled from a centralized computer.

Editing of process parameters from a central location for better process control and lot changes across machines.

Remote viewing of machine PLC status from any location for trouble shooting and for software upgradation.

User defined reports and charts for analysing the Lap Former & Comber performance can be generated for further improvement.

Predefined shift-wise, daily, weekly, monthly reports can be sent through mail to respective users.



LH20 S

Technical Data

Number of Doubling	:	Up to 20
Delivery Speed	:	Up to 200 MPM (Average)
Lap Width	:	300 mm
Maximum Lap Dia	:	600 mm
Lap Length	:	300 mtr
Lap Weight	:	60 to 80 g/m
Feed Can Size	:	24" × 48" (600 mm × 1200 mm) 40" × 48" (1000 mm × 1200 mm)
Drafting System	:	2 over 2
Draft Range	:	1.0 to 1.3
Total Installed Power	:	19.77 kW
Compressed Air Requirement	:	7 Nm ³ /hr
Exhaust Air	:	0.8 m ³ /sec

LK69 M / S

Technical Data

Number of Heads	:	8
Nips per Minute	:	Up to 600 NPM
Noil %	:	8 to 25%
Delivery Sliver Hank	:	Ne 0.08 to 0.20
Collection of waste	:	Centralised Fan Suction Continuous – Upwards Centralised Fan Suction Continuous – Downwards
Delivery Can Size	:	24" × 48" (600 mm × 1200 mm) 40" × 48" (1000 mm × 1200 mm)
Drafting System	:	3 over 3
Drafting Range	:	7 to 24
Total Installed Power	:	LK69 S – 8.3 kW LK69 M – 6.08 kW
Compressed Air Requirement	:	0.4 Nm ³ /hr
Exhaust air	:	0.7 m ³ /sec



LK69 SERIES



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