COMBER
LK69

Sets the Pace

Comber LK69 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 fibre moving path enables the machine to run at higher speeds without straining the fibre and ensures efficient removal of short fibres and Neps.


LK 69

Salient Features Of Comber LK69

Drafting over Coiler

For consistent output quality at 600 npm

More reserve cans

2 reserve cans (600mm can dia)

1 reserve can (1000mm can dia)

Higher production

Upto 2.1 tons/day

Inverter controlled main motor & Servo driven drafting motor (Optional)

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

90^0 combing cycle for smooth and gentle handling of fibers

Automatic Lap Transport System

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 higher nips per minute-600

High Speed Technology - PACT

High production of upto 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 fibre transfer from feed zone to the detaching zone. PACT supports maximum speed of upto 600 npm with reliable operation.

TOP NIPPER MOTION

4 Bar linkage facilitates flexibility in the top nipper motion

COMB MOTION

Reduced combing acceleration of comb at 600 npm

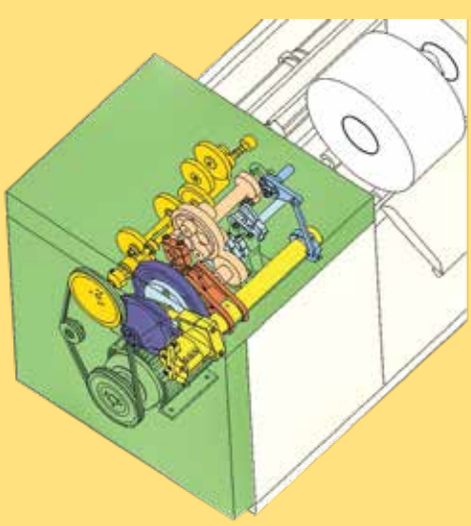
DETACHING ROLLER MOTION

Motion optimized for lesser acceleration at 600 npm

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

Headstock and Gear Box

The headstock and the gear box are so designed in order to run the machine at speeds of upto 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 Comb

The Top comb plays a major role in removing the waste. The number of needles in the Top comb depends on the fibre micronaire, the lap weight and fibre parallelization in the lap. If the fibre 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.

For lower waste requirement applications there is an option of 23 needles per centimetre. This brings the flexibility of maintaining the top comb penetration in the plus side even for lower noil process.

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.

Variocomb

The circular variocomb is one of the most important components on the comber. 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 fibres, the particular strip needs only to be replaced.

Flexible **User Friendly** **Cost Effective**

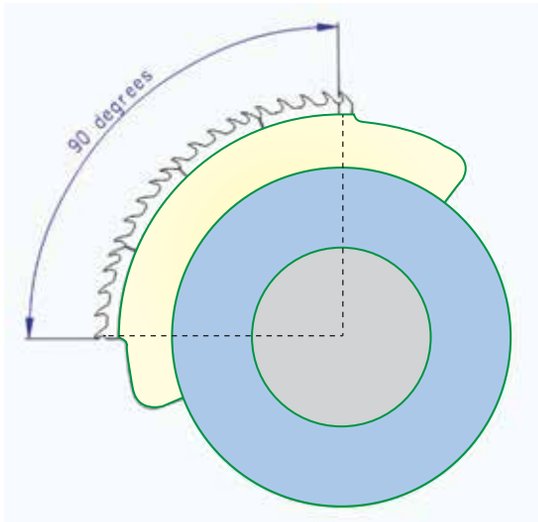
Proven Combing Action

- In comber LK69 for a given combing time, with 90° Variocomb - controlled acceleration and decceleration of comb without reducing the combing time for effective combing.

- This results in efficient combing without fibre damages and fibre loss.

Flexible variocomb with gentle combing facilitates noil removal from 8-25*%

*Depends on raw material and quality requirement



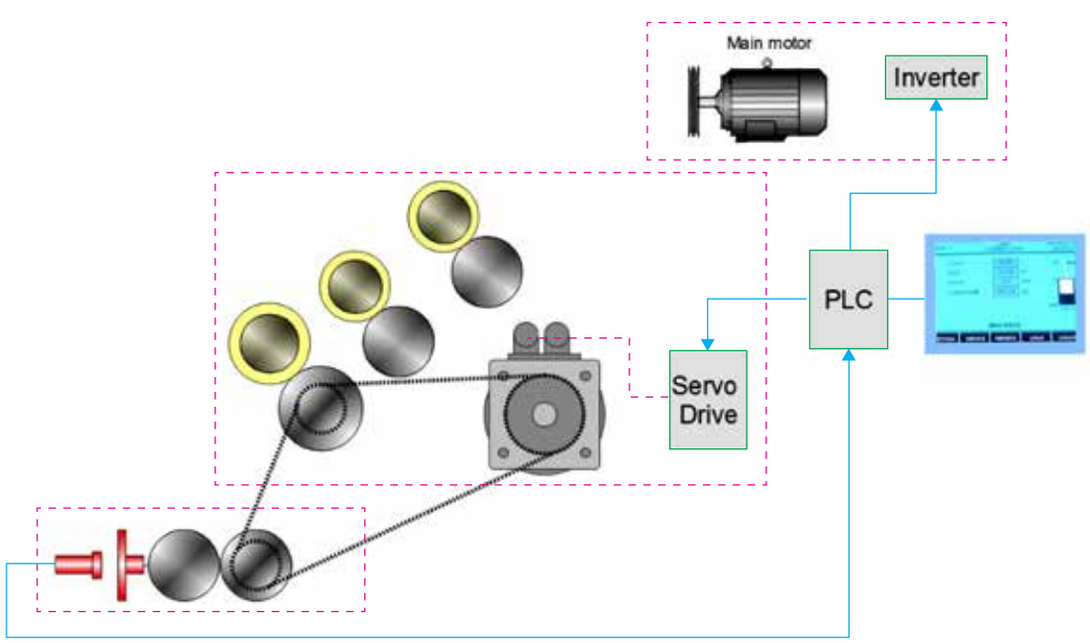
Inverter Driven Main Motor + Servo Draft Motor (Optional)

The latest additional feature in LK 69 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.

Online quality monitoring with auto hank correction system

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
- Man power reduction

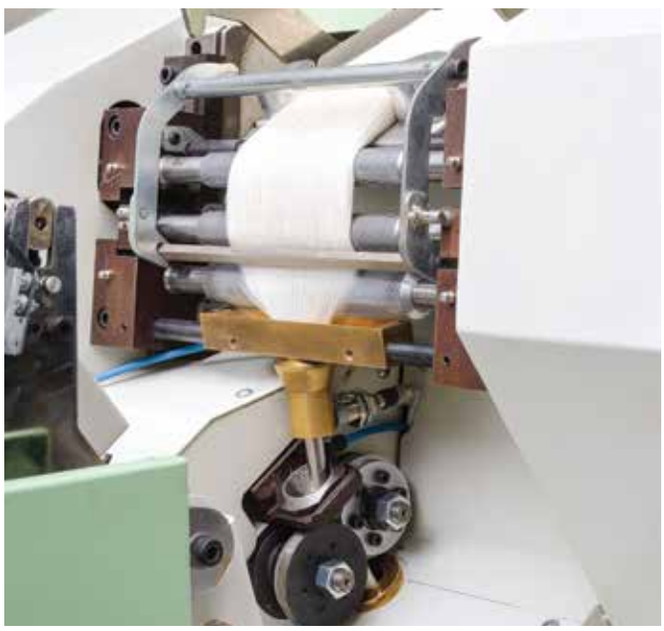


Drafting System

Comber LK69 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.

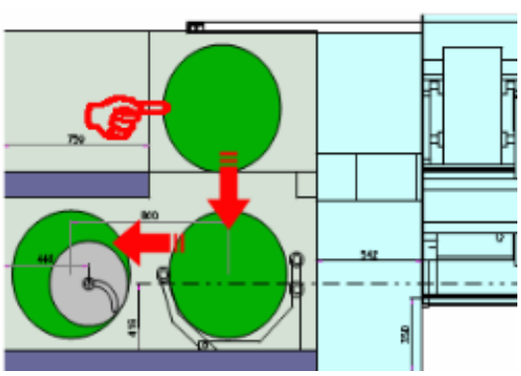
- Inclined 3/3 pneumatically loaded drafting system over coiler
- Lesser travelling distance of the drafted sliver
- Tension stretch to the drafted combed sliver is completely eliminated
- Toothed belt drive ensures noiseless performance
- Auto piecing assistance
- Built-in earthing stop motion in drafting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

Piecing at only one place ensures better quality.



Coiler & Can Changer Arrangement

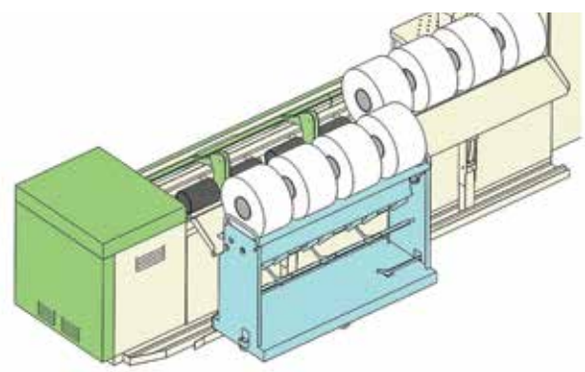
Comber LK69 is equipped with linear can changer arrangement with can size of 24" x 48" with 2 reserve cans and 40" x 48" with 1 reserve can at delivery provided in order to improve the efficiency. The drive system is simple and is enclosed and the elements are so designed for effective sliver compression.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



User Friendliness

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 fibres and neps
- Provision for both forward & backward feed control



Automatic Lap Changer

- Auto lap changing from tolley to comber
- Four or Eight lap changing at a time
- Gentle handling of heavier laps
- Adaptability – To hold laps from Ribbon lap / 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 the base plate with head stock and eight combing heads. The Second module, the Delivery Module consists of the drafting unit, coiler assembly and suction hood.

Lap Former LH15

The Lap Former LH 15 is the perfect partner for Comber LK 69 to produce high quality laps. The machine with average delivery speed of upto 150 mpm (depending on raw material) 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.

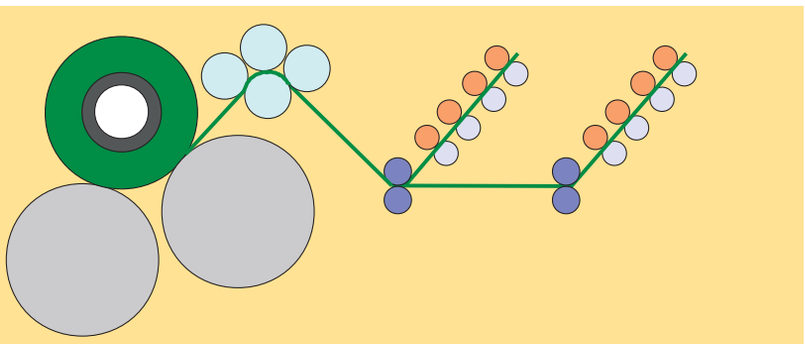
Salient Features

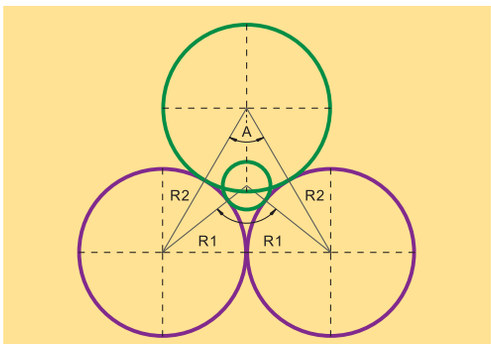
- Production up to 520 kg/hr, feeding to 6 combers producing over 1.5 Tons/day
- Average delivery speed up to 150 m/min (depending on raw material)
- Minimum doffing time ensures higher efficiency and productivity
- PRO-IN control system for better lap preparation
- Ergonomically designed static creel for sliver feed
  - Creel sliver breakage identification through display
  - Creel sensor selection with respect to doubling is done through display

Efficiency upto 70%

Lap Loading - Pro-In Control System

- During winding, uniform load on the top layer is ensured by changing the load in pre defined intervals/steps
- Speed is controlled inversely proportional to the lap diameter.
- Combination of these helps in maintaining a constant lap sheet weight and 1 m CV% of less than 0.75 throughout the lap.
- Speed and load can be selected in display.





Drafting System

- Two drafting heads for superimposing layers of lap sheet
- 4/4 spring loaded drafting system with belt drive
- Top rollers get lifted along with loading arm, making piecing easier
- Variable top roller load to suit different process parameters

Draft Selection

- Lapformer process doubling of 4 to 6 in Draw frame and 20 to 28 in lap former can be used
- Pre comberdraft varies from 6.5 to 11
- The selection of doublings and draft is based on the fibre properties, sliver hank and lap weight required

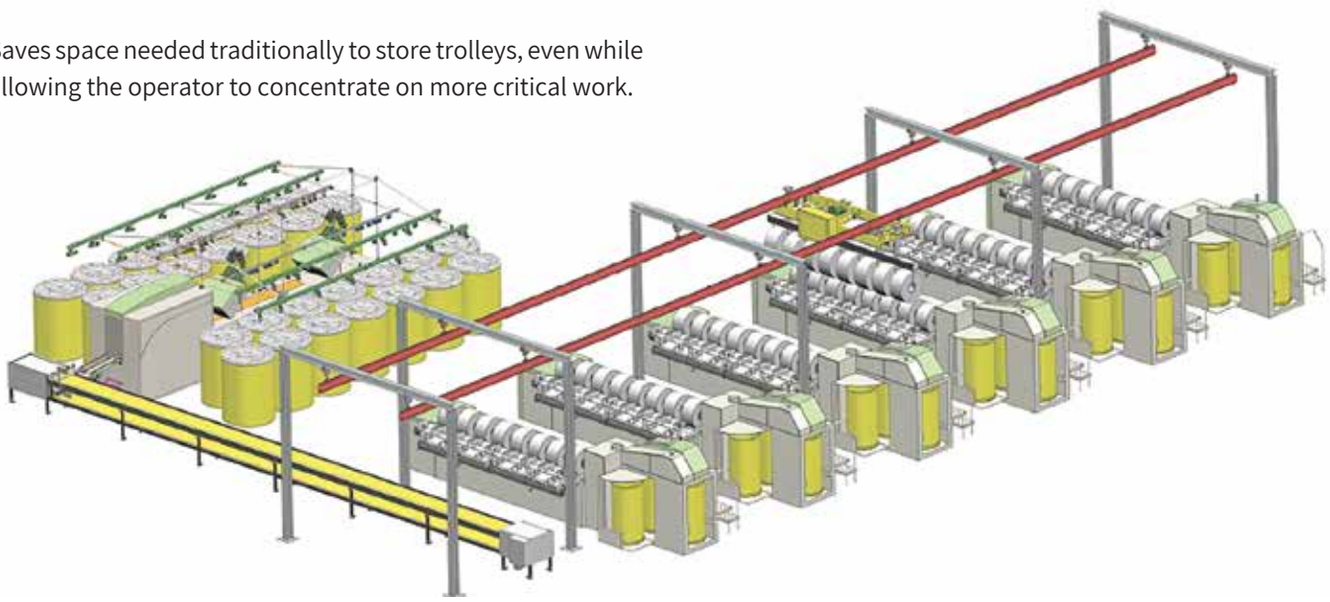
Lap Head

- Average Delivery speed of up to 150 m / min (depends on raw material)
- Three individual curves from start to finish of lap 3 over 1 calenderroller arrangement for compact lap sheet
- Maximum diameter upto 600 mm and width 300 mm

Lap Transportation System (LTS)

The Lap Transport 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, even while allowing the operator to concentrate on more critical work.



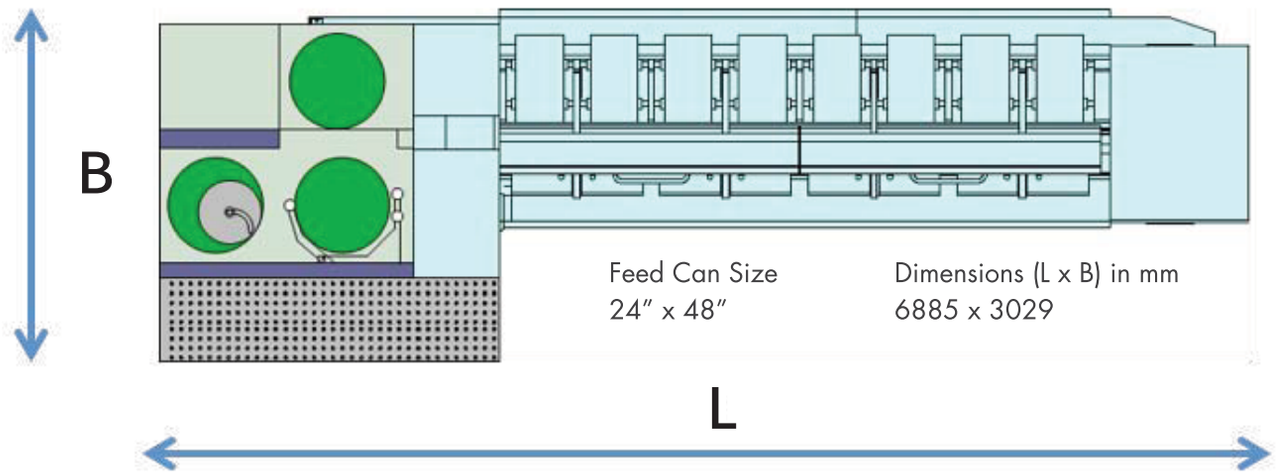
- Lap former is connected to Combers through a conveyor transport system.
- Upon request/signal from a Comber on nearing exhaust of the running laps, 8 nos. of full laps are transported through overhead rails to respective comber
- The empty spools from Comber is then transferred to the Lap former automatically.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

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

Upto 50% man power reduction in combing section

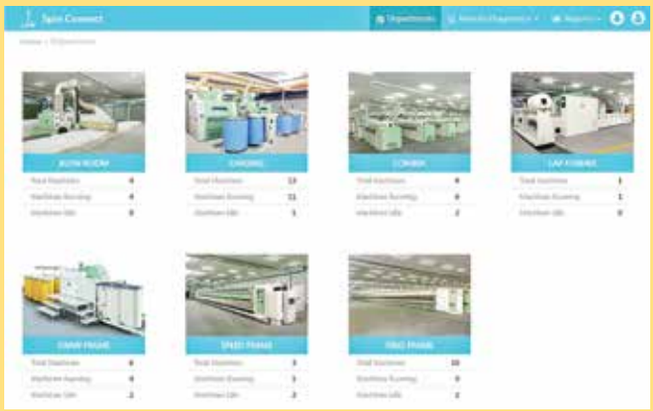
Comber LK69 Layout



Integration of Lap Former & Comber through SPINCONNECT

Lap Former LH15 & Comber LK69 can be integrated with Spinconnect, a web based monitoring and control application. The HMI details are transferred through Wi-Fi / LAN Connection and all the parameters can be viewed in a central 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 troubleshooting and for software upgradation.
- User defined reports and charts for analysing the Lap Former & Comber performance can be generated for further improvement.
- Predefined daily, weekly, monthly reports can be sent through mail to respective users.



Technical Data

Feed lap weight	: 60 to 80 g/m
Noil	: 8 to 25%
Draft range	: 7 to 24
Delivered sliver hank	: Ne 0.10 to 0.20

Machine Data

No. of heads per machine	: 8
Maximum lap diameter	: Upto 650 mm
Width of lap	: Upto 300 mm
Nips per minute	: Upto 600
Delivery can size (Dia. x Ht.)	: 24” x 48” (600 mm x 1200 mm)
	: 40” x 48” (1000 mm x 1200 mm)
Main motor	: 4 kW
Brush motor	: 1.1 kW
Control panel	: 0.24 kW
Total installed power	: 5.34 kW
Compressed air requirement	: 0.4 Nm^3/hr @ 6 kg/cm^2
Exhaust air	: 0.7 m^3/sec

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