LMW®

COMBER
LK69 SERIES

Flexible

LK69 S

Comber LK69 S 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.

Highly Efficient

Specific
Features

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

- 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 variocomb 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 upto 600 NPM

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.

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 NIPPER MOTION

- 4 Bar linkage facilitates flexibility in the top nipper motion

COMB MOTION

- Reduced combing acceleration of comb at 600 npm

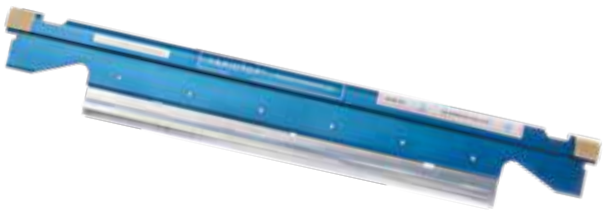
DETACHING ROLLER MOTION

- 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

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.
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 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.

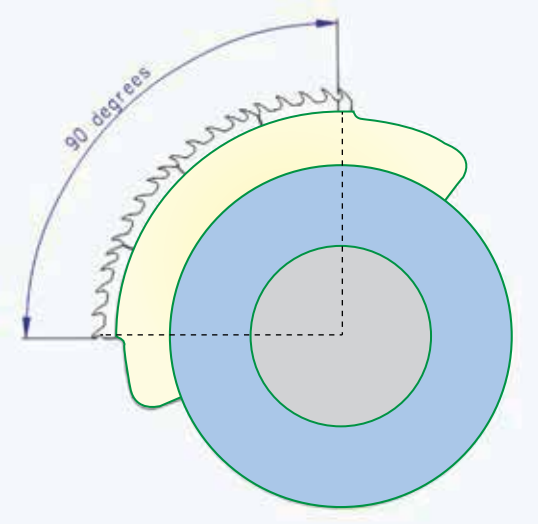
For lower noil requirement applications there is an option of variocomb with lesser PPSI. This brings the flexibility to spinners to achieve the required noil percentage depends on the process and end application.

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

Proven Combing Action

In comber LK69 Series 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.



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

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

*Depends on raw material and quality requirement

Available variants

Simple construction & stable design

LK69 variants offered

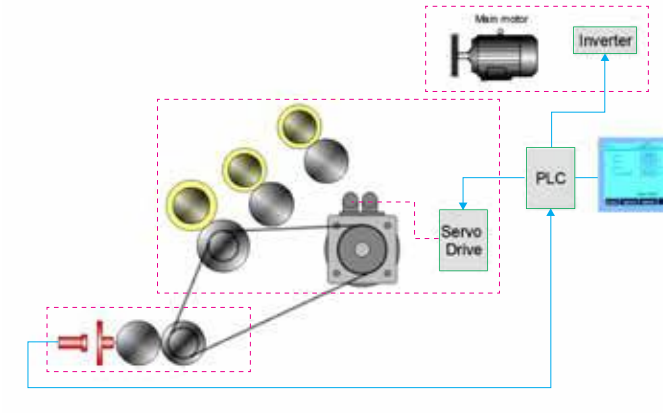
LK69 S - Electronic drafting drive & inverter for main motor
LK69 M - Mechanical drafting drive

Inverter Driven Main Motor + Servo Draft Motor

The latest additional feature in 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.

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



Online quality monitoring with auto hank correction system

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

Piecing at only one place ensures better quality.

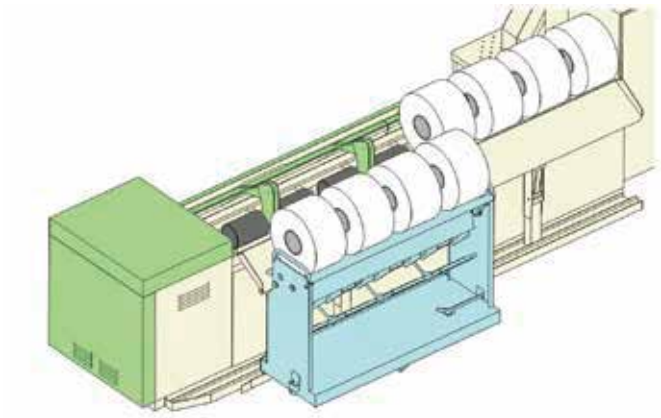
Hank Levelling with Silver & Thick Place Monitoring.

Coiler & Can Changer Arrangement

Comber LK69 Series 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.

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.

Module 2
Drafting & Delivery

Module 1
Head stock

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 upto 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.

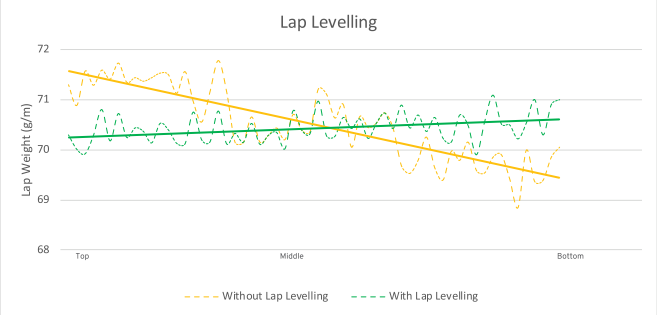
Drafting System

- 2/2 spring loaded drafting system with belt drive
- Reduced fibre 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 arbour 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 upto 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

With minimum doff time LH20 S can produce approx. 60 additional laps per day compared to equilvalent models avialable in the market.

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 hariness
- 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 will have,

- Lesser lap licking.
- Lesser hairiness.
- Less fibre to fibre cohesion.

Userfriendly

- No manual lap weight checking
- Lesser greasing points
- Lesser can handling
- Lesser no.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 / distrubance.
- 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

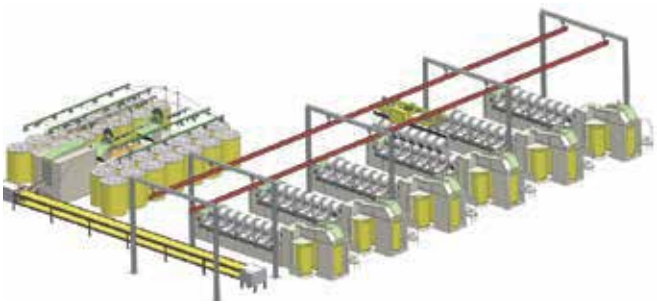
- Ergonomically designed static creel for sliver feed
- Easy Creel sliver breakage identification through lamp and display
- Creel sensor selection with respect to doubling is done through display.

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.



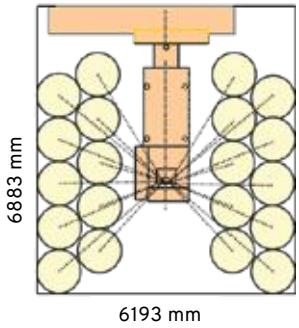
Automation Benefits

- 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

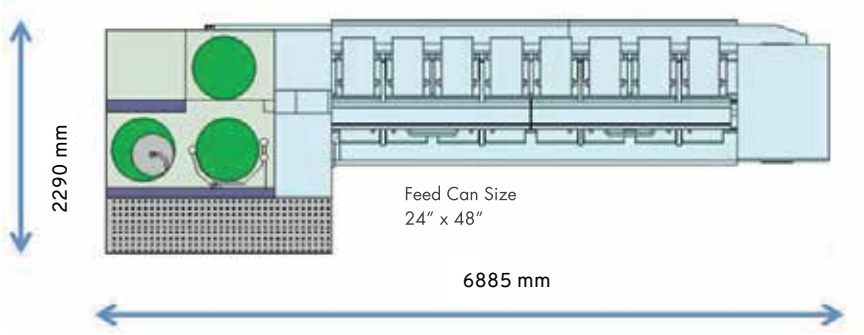
Upto 50% Man Power Reduction in Combing Section

Compact Foot Print

LH20 S



LK69 M/S



COMBER LK69 variants offered

Features	Variant	
	LK69 M	LK69 S
Auto-piecing	✓	✓
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	×	✓
S Draft (Servo motor for changing draft)	×	✓
USB Interface	✓	✓
Connection to Spinconnect	✓	✓

Spin Connect

Digital Automation our Passion

Lap Former LH20 S & Comber LK69 Series 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.

LH20 S

Technical Data		
Number of doubling	:	Upto 20
Delivery speed	:	Upto 200 MPM
Lap width	:	300 mm
Maximum lap dia	:	600 mm
Lap length	:	300 mtr
Lap weight	:	60 to 80 g/m
Feed can size	:	24" x 48" (600 mm x 1200 mm)
	:	40" x 48" (1000 mm x 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	:	Upto 600 NPM
Noil %	:	8 to 25%
Delivered 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" x 48" (600 mm x 1200 mm)
	:	40" x 48" (1000 mm x 1200 mm)
Drafting system	:	3 over 3
Draft 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 S

LMW®

Leadership through Excellence

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