

4S SUSTAINABLE
SMART SOLUTIONS FOR
SPINNING
SUCCESS



CARD LC363 / LC361 S



Versatile



CARD LC363 / LC361 S

Quality at its Best

"LC363 / LC361 S Card is with Highest Active Carding Area"

Carding is a machine which shapes up the final quality level of the yarn to be produced. LC363 / LC361 S is with 1 metre working width and meets the demand of the modern spinners.

"Well carded is half spun"



**Highly
Efficient**

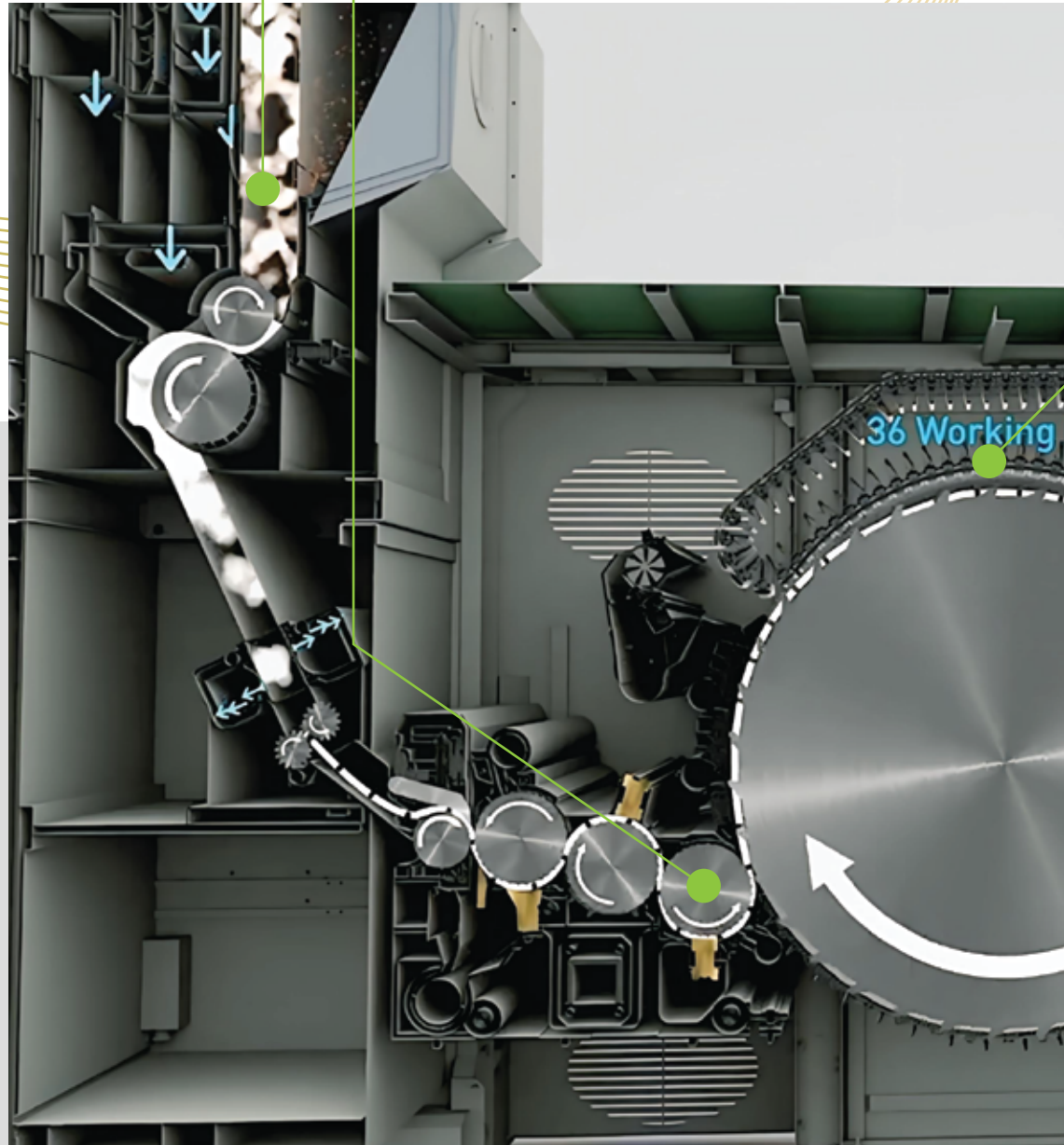
SALIENT FEATURES OF CARD LC363 / LC361 S

Chute LA7/6

- Pressure regulated chute for uniform feeding
- Optimized spring load arrangement for chute feed control plate to maintain uniform tuft size
- Feed weight control through closed loop levelling system
- Direct feed through stainless steel delivery duct arrangement
- Delivery duct & AFD with swing arrangement

Feed & Licker-In zone

- Multi level plate with measuring arrangement
- Variable nipping distance
- Unidirectional feed / conventional feed arrangement
- Triple / Single Licker-in arrangement
- Specially profiled arcual combing segment with waste extraction metal knife
- Metal detector and earthing stop motion
- Smart control of card feed



Cylinder & Flat zone

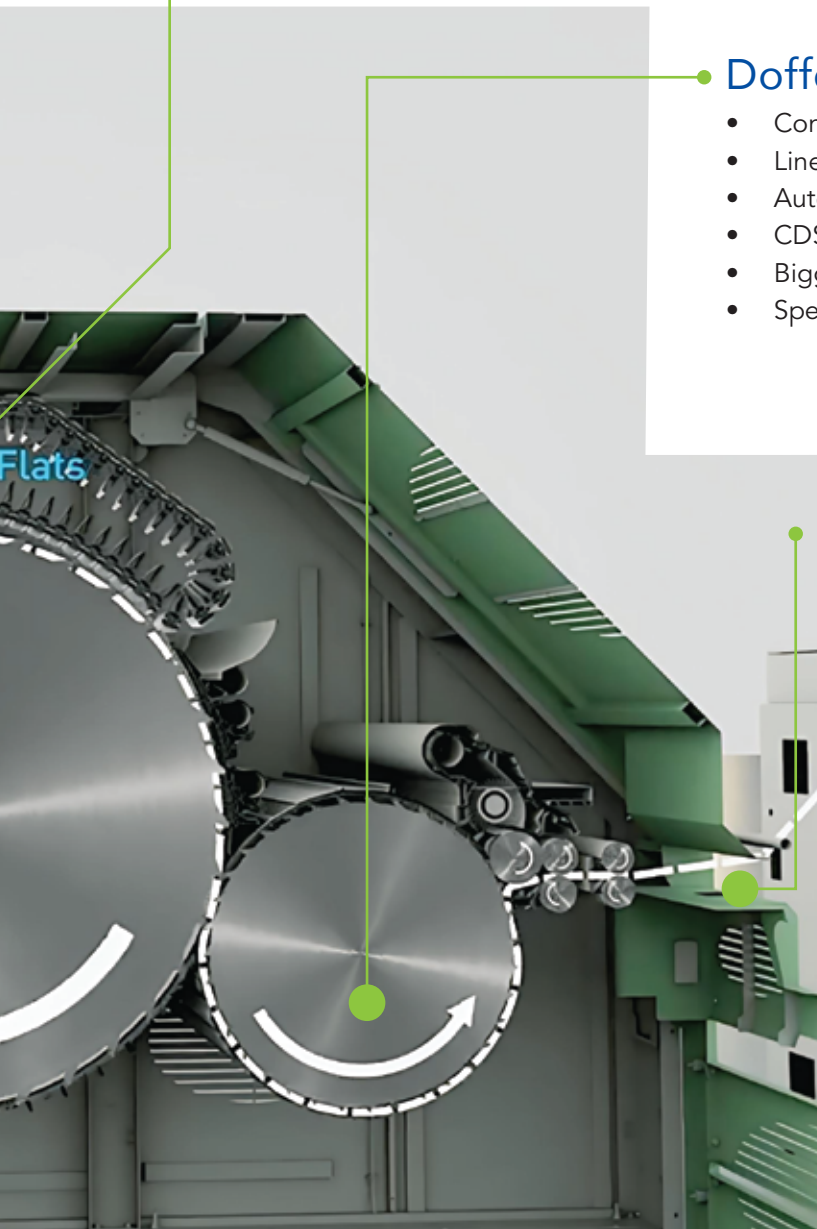
- Highest Active Carding Area - REAL Carding action only through movable flats
- Aluminium alloy flats with highest no. of working flats (36 nos.)
- Optimal air extraction arrangement in Pre & Post carding area with modular construction.
- Cast iron cylinder with uniform setting for higher stability and better quality
- Replaceable type polymer end connector
- Inverter controlled drive for cylinder
- Inbuilt monitoring of flat movement
- Single side suction arrangement for synthetic application
- Flat cleaning with primary and proven secondary arrangement of philipson brush roller

Doffer & Delivery zone

- Conveyor web doffing arrangement for all applications
- Linear 40" x 48" & 24" x 48" coiler with high speed can changer
- Automatic piecing aid
- CDS (Card with drafting system) (Options)
- Bigger can size of 48" x 48" with Fix Fil can changer (Optional)
- Special profile RD under cover with sliding arrangements

Quality

- Online Quality Monitoring System (QMS)
- Feed weight control - Automatic
- Thick spot monitoring with alarm
- Multiple sensing at feed zone to regulate short term levelling



Direct Feed to Card Better CV%

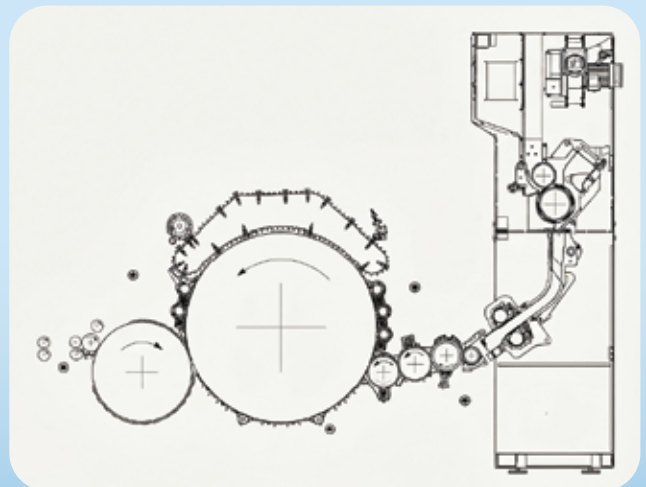
- The saw tooth profiled inverter controlled feed roller with unidirectional feeding arrangement ensures better grip of the feed material.
- Active compression on the fiber material resulting in optimal compact structure which is required for delivering highest sliver quality.
- Patented unique stainless steel delivery unit with swinging arrangement for easy maintenance and accessibility of Card feed zone.
- Less influence of climatic condition on the performance due to direct feeding to Card feed roller.
- Swinging arrangement of AFD for easy access of feed roller / opening roller during scheduled cleaning / maintenance activity.
- Feed weight control through closed loop auto levelling system.
- Split type perforated / plain sheet to control the material flow at top chamber based on position of the Card.
- For fine and super fine counts minimum feed weight of 300 gms/mtrs can be achieved.

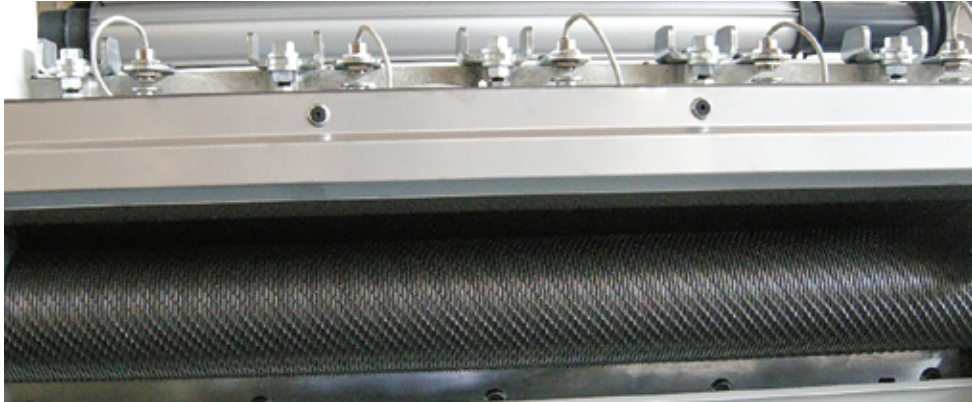


Auto Leveller Arrangement

The pre-levelling of material is done in chute through pressure transducer by altering the chute feed roller speed.

- The feed thickness is measured by sensor and accordingly adjusts the material feed roller speed through regulating arrangement to maintain uniformity.
- Delivery sensor measures the variation in the output sliver and suitable correction will be given to the system for necessary auto adjustment in the feed roller speed.





Five Level Sensor Arrangement

Feed Zone

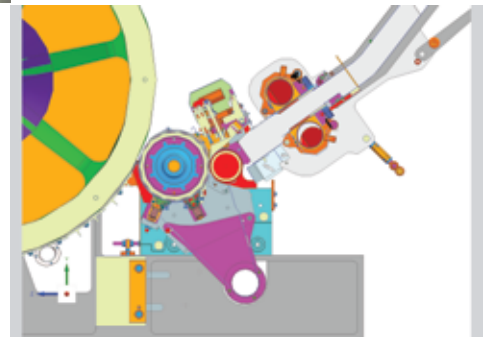
The material feeding from feed roller to licker-in is through unidirectional feeding system which is vital to avoid fiber rupture. The feed plate is fixed over feed roller and the material is sensed at five places to sense the variation across the width.

The metal detector along with multiple feed plate ensures the stoppage of card in case of foreign material entry and ensures the card safety.

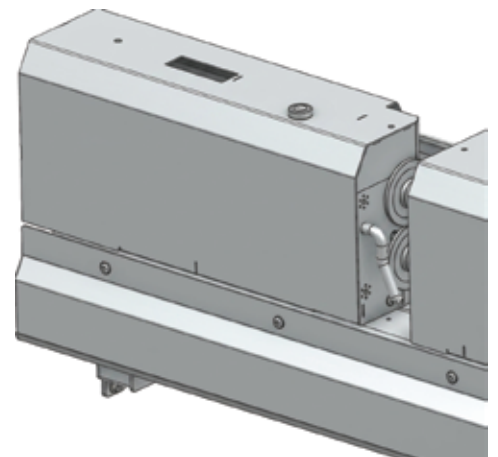
*Unidirectional feed with flexible nipping distance

Variable Nipping Distance

Fiber handling in licker-in zone decides the gentle fiber opening. In order to optimize, the nipping distance can be adjusted depending on the raw material fiber length for better opening.



Feed Thickness Measuring System



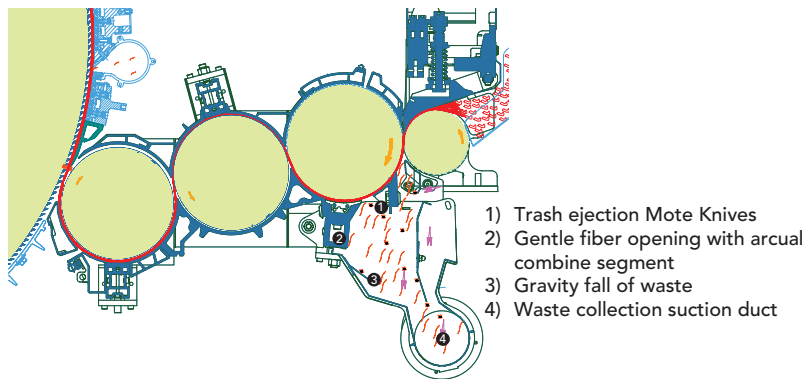
Lesser Lint Ratio

- Trash ejection knives positioned below licker-in for effective removal of waste.
- The quality of waste is high and the Lint loss is very less due to gravity fall & gentle opening of the fiber in the licker-in zone.
- The quality of waste can be adjusted and the trash percentage can be varied depending on the raw material used.
- The suction duct is positioned below the licker-in to collect the waste which falls by gravity.

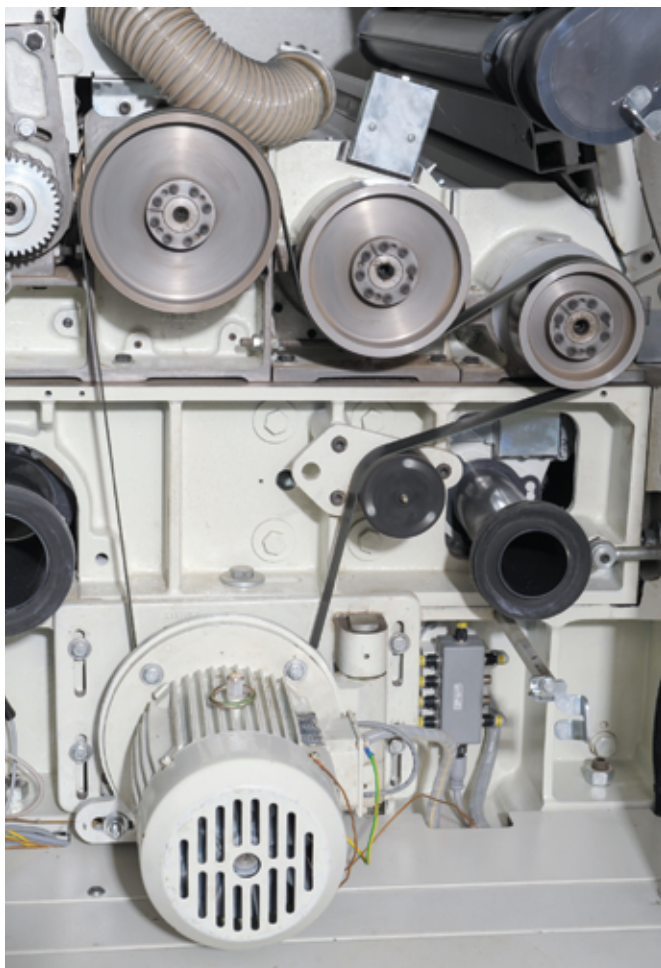
Higher yarn realization-Raw material saving upto 4.5 lakhs/year

Upto 1% lint loss saving * Assuming production rate of 55kg/hr at raw material cost of Rs.105/kg

Triple Lickerin Arrangement



Single Lickerin Arrangement

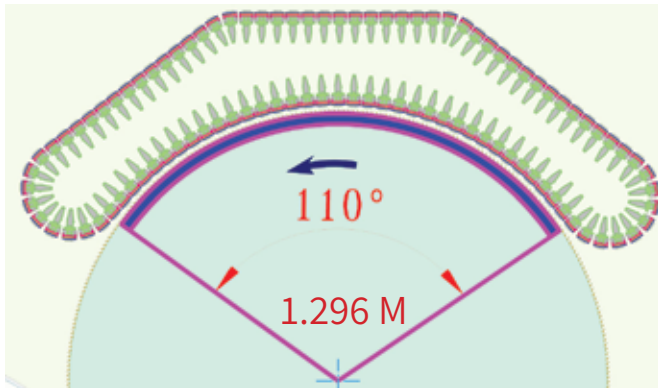


Licker-In Zone

- The licker-in configuration of LC363/361 S helps in gentle opening and also prevents fiber rupture by effective clamping of fiber batt for better opening and reduction in tuft size which ensures minimum load to the main carding zone.
- Card LC363/361 S comes with the option of triple licker-in and Single licker-in arrangement.
- In triple licker-in the 1st licker-in has double knife and one Arcual combing segment for intensive cleaning and pre opening. 2nd and 3rd Licker-in has a replaceable combing strip for further gentle opening.
- The triple licker-in system has saw toothed wire profile with gradual increase of PPSI from 1st to 3rd licker-in. A separate motor drives the Licker-in rollers and different change pulleys combinations are provided to optimize the surface speed of the rollers, based on the process requirement.
- In single licker-in arrangement, two unique specially profiled arcual combing segments are positioned below licker-in where the wire points are aligned towards the line of the Licker-in wire.

The REAL Carding Area - ACTIVE FLAT INDEX (AFI)

The active flat index is a measure of actual carding area in the machine. The real carding action takes place between cylinder clothing and revolving flats. In Card LC363/361 S, 110 degrees of cylinder surface is occupied by the revolving flats (36 working flat out of 97 total flats) which in linear terms works out to 1.296 mtrs over the carding width of 1 mtr. This helps to achieve better sliver quality.



Flats with Replaceable Polymer End Connector

The machine has the unique feature of Replaceable Polymer end connector to get accurate level of heel & toe. Provision is given for end milling in Replaceable Polymer End Connector to get precise cylinder to flats settings.



Flat Construction

The flats is mounted on a light weight aluminium alloy profile and ensured with minimum variation throughout the length of the flats negating the impact of thermal expansion. Inbuilt online monitoring of flat movement to ensure the alignment of flats with cylinder axis.

Flat alignment monitor through pair of sensors to ensure cylinder to flat alignment.

Pre & Post Carding Zone

The stationary flats and suction module are independent with modular construction for achieving an accurate setting throughout the width of the card.

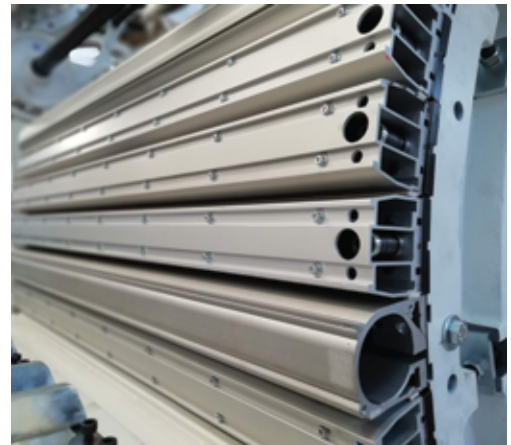
Maximum of 10 Flats in the pre carding zone and 6 Flats in the post carding zone can be accommodated depending on the raw material processed.

Settings for these elements can be varied by replacing the shims of different thickness.

Additionally, 2 knife arrangement option is also available in pre and post carding zone for the application where feed material with harder trash particles.

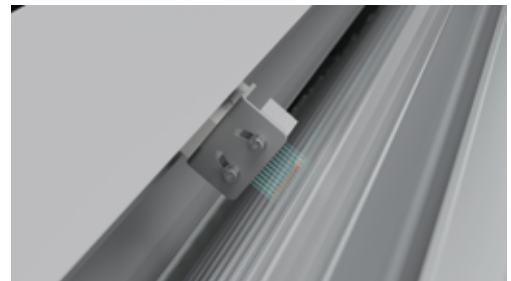
SFL Options - 6F + 3K / 8F + 2K / 10F + 1K

SFD Options - 4F + 2K / 6F + 1K



Flats Cleaning Arrangement

The flats to be presented clean for every cycle which is done by a unique aluminium extruded oscillating stripper with stationary comb arrangement.



- Primary with proven secondary arrangement of philipson brush roller to ensure effective cleaning of flats
- Dedicated monitoring arrangement to ensure removal of flat waste
- Easy maintenance kit for easy movable / removal of flats during scheduled maintenance
- Flats air cleaning arrangement (Optional)

Linear Can Changer -- Quality Ensured with Perfect Coiling

Linear can changer enhances the machine efficiency by 1% through high speed can changer mechanism with positive sliver cutter arrangement. This eliminates sliver variation occur due to reduction in delivery speed during can change in other conventional can changers and contributes to the increase in production at the same run time of the machine.

Production
increase of
4500 kg/year*

*Assuming 22.5 hrs run time with
production rate of 55kg/hr



On-line Quality Monitoring System (QMS)

QMS is developed to monitor instant sliver quality with machine stop control. Trend charts are available to study the consistency level in continuous process. Maximum allowed quality levels & stop control ON/OFF can be set in the display. Correction factor can be given to match ONLINE & OFFLINE values. The parameters measured and monitored are:

- Number of Thick Places & U% value
- 1M, 5M, 10M & 100M CV values
- Chute operating pressure
- Graphical representation

Maximum allowed set limit can be specified for CV% Thick & U% values



Delivery Zone

Effective web transfer is ensured by saw tooth take-off roller and a pair of smooth web detaching delivery rollers. The web is collected by a pair of crush rollers and the condensed web will pass through a pair of scanning rollers. Advanced timing belt drive ensures the machine's quiet running even at higher delivery speed. For Synthetic, blends & open end applications the web collection is through Conveyor Belt Arrangement.

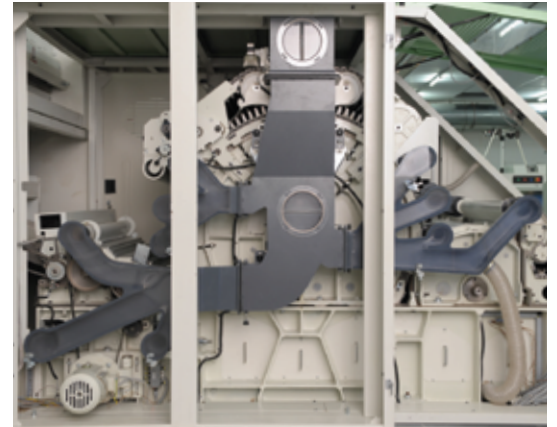
Easy accessibility of

- Doffer stripping (above doffer) through optimized configuration
- RD under cover through aluminium extruded sliding arrangements
- Inbuilt automatic piecing aid for increased machine efficiency
- Easy draft adjustment through display



Waste Collection System

- The WCS is designed with specially profiled FRP duct (Fiber Reinforced Plastic) for continuous collection of waste.
- The main purpose is to avoid fiber accumulation in the ducts as it may affect the suction pressure. All the individual points are routed to the central ducts ensuring user friendliness and cleanliness of the card.
- Licker-in to dust and Flats Waste can be collected either separately or can be combined with the central duct.
- The card can be provided with different Waste collection systems combinations like
 - All together Upwards
 - Licker-in separate & other together-Upwards
 - Flats separate & others together-Upwards
 - All together Downwards
 - Licker-in separate & others together-Downwards Flats separate & others together-Downwards
 - Manual Waste Collection is also possible through Filter Box arrangement (Optional)



Energy Saving Electrical System

The card LC363/361 S has been designed and developed for lesser energy consumption. The dynamically balanced carding elements (cylinder and delivery rollers) with inverter drive and energy efficient motor helps in lesser power utilization.

Electrical Panel With Touch Screen Display

The user friendly electrical panel with touch screen display can be accessed easily. Since the coiler is driven separately, Sliver draft can be set in Display itself. The pressure in the chute chamber is displayed in the panel and can be varied to meet the requirement.

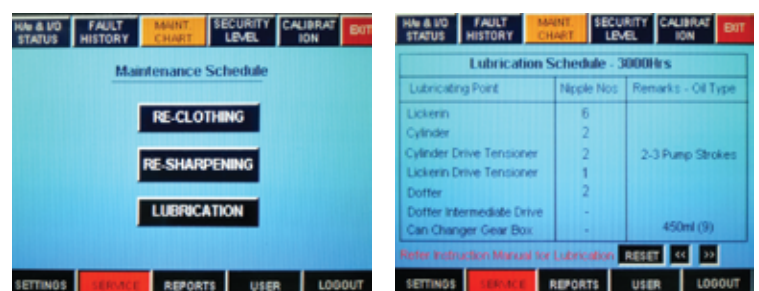
Simple to access. All the control, monitoring and service elements are housed inside the panel. The display system provides necessary information for user to run the machine and additional facilities like programmable individual double lap, Fault history etc., are available.



Maintenance through HMI

The key maintenance schedules like Grinding, Wire Replacement and Lubrication activities are available in the display for customized setting of time period with alarms.

Service mode for easy maintenance activity.



CDS (Card with Drafting System)

Card LC363/361 S can be offered with Integrated drafting system. The CDS comes with 2 over 2 pneumatically loaded drafting system with servo control. The Intelligent auto levelling system ensures the consistent quality of the sliver delivered from Card. The maximum delivery speed of 700 MPM is possible with CDS. The drafting is equipped with easy adjustment of load for drafting rollers. The CDS can be offered for shortened Air-jet and Open End process and it can be retrofitted in the existing machines.

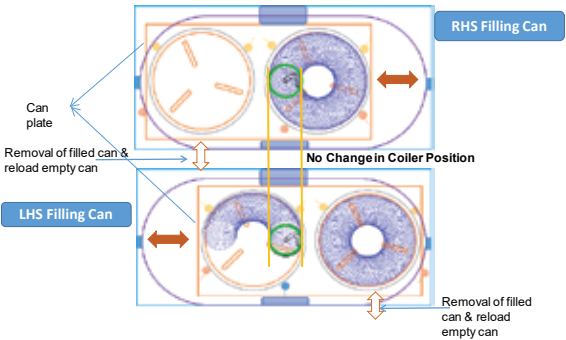
The unique design of CDS ensures quicker and effective piecing which increases the machine efficiency. The levelling of sliver takes place through the speed change of front drafting roller and the hank is ensured through the additional sensor positioned at delivery. The drafting unit consists of in-built suction system with stripper arrangement for effective removal of microdust.



Specification	CDS
Drafting front roller	Variable
Drafting back roller	Constant
Speed change	Front roller, Calender roller and Coiler

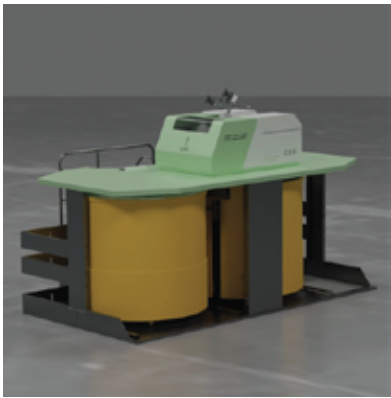
Fix Fil Can Changer

Card LC363/361 S can be offered with the delivery can size dia of 1200mm. The unique concept of can changer is developed to handle bigger can for minimizing space. In the Fix Fil concept the coiler is strategically positioned for minimal movement of can which helps with reduction in can movement and space. The can movement takes place Inside the machine which is possible by dual can plate with individual drive arrangement. The machine comes with inbuilt doffed can monitoring sensor which ensures safety.



Advantages of Bigger Can

- Mean time between assist can be increased upto 50%, so one person can handle more Card and Draw Frame.
- Up to 33% fewer can transport up to Draw Frame, as it runs longer in Card and creel of Draw Frame.
- Lesser creel changes means lesser sliver piecings result in upto 33% fewer error locations and thus improves quality.
- Increased efficiency upto 2% in Draw Frame, requires lesser can changes as it runs longer in Card and creel of Draw Frame.

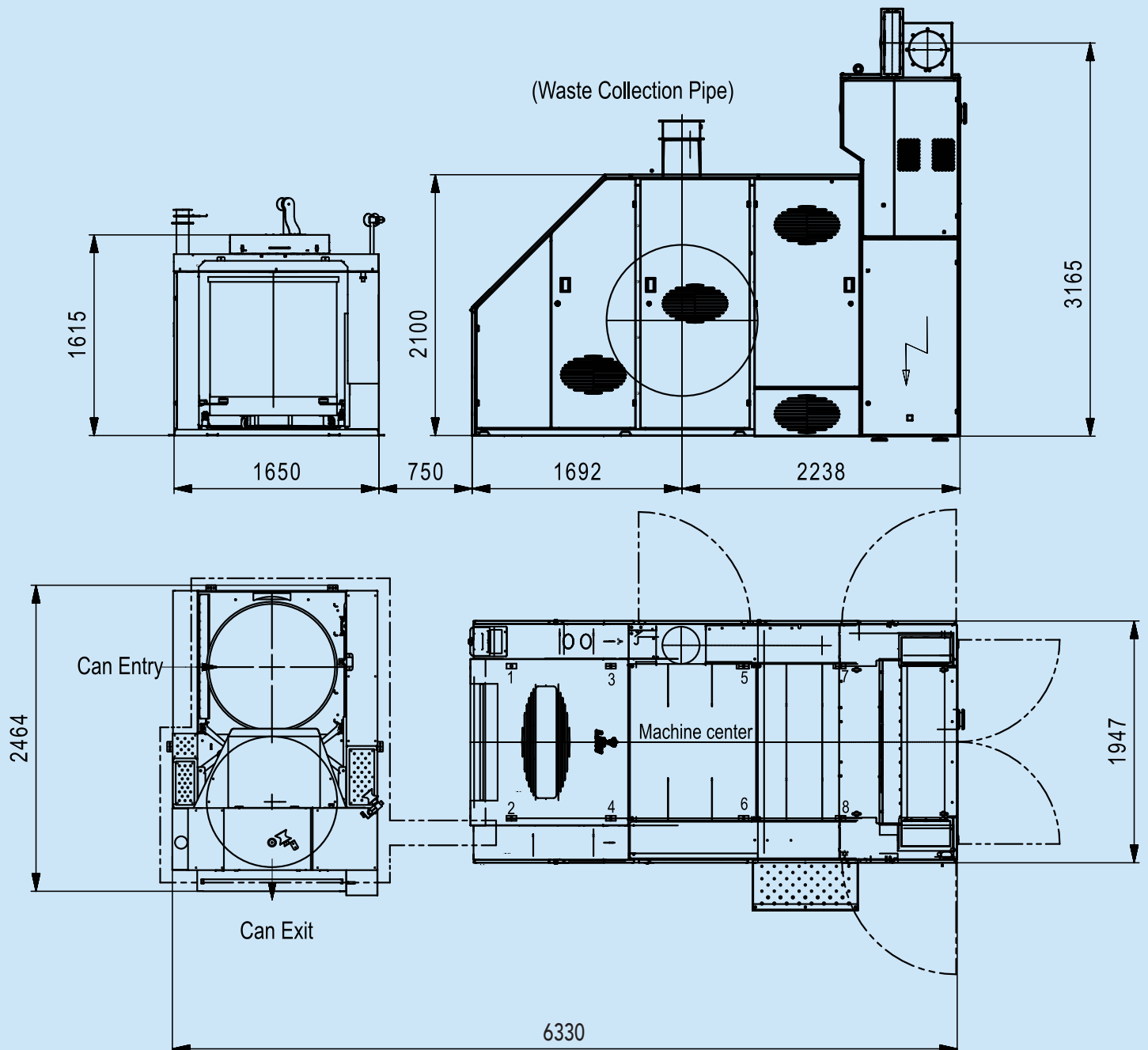


Spinconnect 2.0 Digital Automation our Passion

Card LC363/361 S 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 Card LC363/361 S performance can be generated for further improvement.
- Predefined shift-wise, daily, weekly, monthly reports can be sent through mail to respective users.

Machine Layout



Technical Data

Application Range	:	Cotton, Man-Made Fibers and Blends
Sliver Count Range	:	0.06 – 0.18 Ne
Total Draft	:	60 – 300
Feed Weight	:	300 - 800 g / m
Working Width	:	1000 mm
Can Size and Changer	:	40" x 48" / 24" x 48" Linear Can Changer
Waste Removal	:	Automatic & Manual with Filter Box Waste Evacuation System
Auto Levelling	:	Both Long Term and Short Term as Standard Equipment
Total Flats	:	97
No. of Working Flats (REAL Carding)	:	36
Pre - Carding	:	SFL 6F + 3K / 8F + 2K / 10F + 1K
Post - Carding	:	SFD 4F + 2K / 6F + 1K
Compressed Air Requirement	:	0.7 Nm ³ / hr
Exhaust Air Requirement	:	1.1 m ³ / sec (All Together) 1.2 m ³ / sec (Separate)
Total Installed Power	:	18.69 Kw (Triple Licker-in) 16.89 Kw (Single Licker-in)



CARD LC363 / LC361 S



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Issue No 2, April 2026